Washington, D.C.
Oct 13-1917

Swales

THE WILSON BULLETIN

VOL. XXIX SEPT., 1917 NO. 3

OFFICIAL ORGAN OF

THE WILSON ORNITHOLOGICAL CLUB

and THE NEBRASKA ORNITHOLOGISTS' UNION

(In Affiliation)

No. 100

CONTENTS

Birds of Denver	W. H. Bergtold	113-129
Horned Larks in the Province of Quebec	L. McI. Terrill	130-141
Annotated List of the Water Birds, Game Birds and Birds of Prey of Sac County, Iowa	J. A. Spurrell	141-160
General Notes		161-166
Publications Reviewed		167

THE WILSON BULLETIN

published quarterly, March, June, September, December, as the organ of the Wilson Ornithological Club and the Nebraska Ornithologists Union, is edited by Dr. Lynds Jones.

Terms:—$1.00 a year, including postage, strictly in advance. Single numbers 30 cents. Free to all members not in arrears for dues.

The Office of Publication is No. 48 South Main St., Oberlin, Ohio. Subscriptions may be addressed to Geo. L. Fordyce, Youngstown, Ohio, Business Manager, or to Frank M. Phelps, 212 East 4th St., Elyria, Ohio, Treasurer.

All articles and communications intended for publication and all books and publications for notice, should be sent to Dr. Lynds Jones, Spear Laboratory, Oberlin, Ohio, in time to reach Oberlin at least four weeks before the date of the number for which they are intended.

The Officers of the Wilson Ornithological Club for the year 1917 are:
President—Rev. W. F. Henninger, New Bremen, Ohio.
Vice-President—George L. Fordyce, Youngstown, Ohio.
Secretary—Gerard Alan Abbott, Grosse Pointe Shores, Mich.
Treasurer—Frank M. Phelps, 212 East 4th St., Elyria, Ohio.
Business Manager—George L. Fordyce, Youngstown, Ohio.
Editor Wilson Bulletin—Lynds Jones, Spear Laboratory, Oberlin, Ohio.

Entered as Second Class Matter, July 13, 1916, at the Postoffice at Oberlin, Ohio, under the Act of March 3, 1879.

CORRECTIONS TO "LOCAL NAMES OF BIRDS" IN MARCH, 1917, BULLETIN.

Page 74—Name of author; should be McAtee.
Page 75, 126—Genus should be *Stercorarius.*
Page 76, 28—Local name is Bec-a-lance.
Page 76, 30a—usaser should be weaser.
Page 76, 31—plorgeon should be plongeon.
Page 77, 37—Genus should be *Charitonetta.*
Page 77, 46—*candensis* should be *canadensis.*
Page 78, 49—jumper should be pumper; onomatropoeic should be onomatopoeic.
Page 78, 49a—Genus should be *Ixobrychus.*
Page 78, 53—Specific name should be *virescens.*
Page 78, 54—Quaker should be quawker.
Page 79, 68—Genus should be *Pelidna.*
Page 81, 97—Genus should be *Ceryle.*
Page 82, 102—heigh-lo should be heigh-ho.
Page 82, line 17—Tyranniqae should be Tyrannidae.
Page 82, 108a—Generic and specific names should be separated.
Page 82, 109a—Knelies should be Kreelies.
Page 83, line 1—Onometopoeic should be onomatopoeic.
Page 83, 117—*lecophrys* should be *leucophrys.*
Page 83, 125—Pinlar should be Pindar.
Page 84, line 26—Minidae should be Mimidae.
Page 84, 143—Wickenburg should be Wicklenburg.
Page 85, 151—Heckman should be Hickman.
Page 91—Creepr should be Creeper.
Page 91—Chickadock should be Crickadock, and Crickadock should be Crickadoo.
Page 92—Hoitalot should be Hoitalotl.
Page 94—Stripe-yard bird should be omitted.
Page 94—Twillicq should be twillick.

THE
WILSON BULLETIN
NO. 100
A QUARTERLY JOURNAL OF ORNITHOLOGY
VOL. XXIX SEPT., 1917 NO. 3
OLD SERIES VOL. XXIX. NEW SERIES VOL. XXIV.

THE BIRDS OF DENVER.

An Annotated List.

BY W. H. BERGTOLD.

This list is published, not only to make available to ornithologists in general a part of the writer's accumulation of data relating to Denver's birds, but also to render aid, in a small way, to bird-loving visitors to this city, especially to those whose visit may be of brief duration, and who wish to make, from a bird lover's point of view, the most of such a "stop-off."

It is hoped that the list will point out what birds one may reasonably expect to see in Denver at any given time, and to define, in a general way, the status of any one of such birds. Parenthetically, the writer may be permitted to digress a bit, and suggest to the visitor who may have some time left over after a general survey of Denver's birds, that it can be profitably spent in studying a few mountain species, which can be found in Lookout Mountain Park. This region is easily reached in a little over an hour's trolly ride from Denver, which ride is a trip along the valley of Clear Creek, and which will in itself disclose birds not common, or seldom, seen in Denver.

The situation of, and the conditions about, Denver, make it a peculiarly interesting place for the study of western bird life; its geographical location makes it possible to see within its boundaries species and subspecies usually restricted to

Eastern, Northern, Western or Southern Faunae, the City of Denver being at the overlapping edges of these four characteristic bird regions.

When the writer first came to Denver (1881) its corporate limits were much smaller than at present, it had no large parks, and its then rather infrequent trees were nearly all native "cottonwoods," which were watered by small irrigating ditches running as gutters on either side of practically every street. The complexion of its bird life was then very different from what it is now; there were no English sparrows, fewer house finches, but more swallows (of several species) and many ravens and turkey buzzards. The immediately surrounding country had much of its native bird population unchanged; the small ponds and sloughs were all frequented by many curlews, avocets, plovers, and other forms now relatively scarce, even in districts of the State still uninhabited and uncultivated.

In the intervening thirty-six years vast changes have been wrought by man, not only in the upbuilding of a modern city, but even in the very topography of the area now under consideration; what was then virgin prairie dotted with an occasional pond, and slightly marshy area, and with perhaps a cottonwood tree here and there, is now well wooded and watered park and residential districts.

If in the summer one view Denver from the summit of Genesee Mountain (air line distance about 18 miles), it seems mainly to be, not a multitude of houses, and other buildings, but a dense green forest, stretching out towards, and gradually melting into, the prairie on the distant eastern horizon. This appearance is due to the great abundance of tall shade trees growing on each side of all the residence streets, and the deception is enhanced by the many trees in the extensive park system which adds so much to the beauty of the city. This park system embraces some thirty-five parks, varying in size from one to nearly five hundred acres, some of which are more or less inter-connected by wide and partly wooded boulevards; forty years ago the ground cov-

ered by the largest of these parks, the so-called "City Park," was unaltered prairie, with no trees, and with one uncertain watercourse. Now after years of labor and care it is well covered by trees of many species, has three moderate sized lakes, and gives shelter to many bird species and bird indivaduals, which years ago were unknown or scarce in the same area.

Three of the smaller parks also lend themselves particularly well to fostering bird life, to-wit, Berkeley, Cheesman, and Washington Parks.

Because of the conditions briefly, and incompletely outlined above, the City of Denver furnishes a striking example of the changes in the bird population in such a locality which can be brought about by the presence and intervention of man; it is highly gratifying to see and to realize, that in Denver the harm to birds following in the track of civilization, has not been of its usual severity. Here man has not dealt altogether harshly with birdkind.

The writer's duties, for many years, have taken him daily through one or more of the parks of Denver, and also frequently to the outskirts of the city; he is convinced that each year shows an increasing bird population, both in species and individuals, throughout most of the city, but especially noticeable in Washington and Cheesman Parks. However, an exception to this must be noted; the writer is certain (based on careful personal observations) that the number of bird species and individuals has decreased in City Park during the past six years, a decrease most noticeable in the number of Bullock's orioles. This undesirable diminution is due, it seems to the writer, to the continued extensive spread of the English sparrow, and to the recent introduction of squirrels. While the latter have been detected many times in the act of eating the eggs and young of our native birds, their injurious effects on our bird population are probably far less than those of the English sparrow, which swarms in this particular park. This sparrow finds an easy living in the pheasant and other zoölogical enclosures, and for a few years past,

after using ordinary sites for its nests, has taken to occupying abandoned oriole nests; hence the conditions in City Park promote the English sparrow's usual prolificity, and cause a corresponding repression of the natural increase of the native birds, because this sparrow destroys many nests, eggs, and young of our small birds. It is a pity that some systematic effort cannot be made to restrict the multiplication of the English sparrow in our parks; a routine destruction of its nests would be in itself a large first step in the right direction.

It has been a real privilege to watch, in the past years the gradual increase of birds in Denver; where thirty-five years ago there were robin, warblers, vireos, and house finches by twos and threes there are now dozens; where years ago nuthatches, chickadees, and juncoes were to be found sparingly along the Platte River as it passed through Denver, they are now to be seen every winter in all the parks, and even at times in the well built up sections of the city. Furthermore there is no doubt but that our beautiful native bluebird would be as common as robins in the city were it not for the English sparrow. These species furnish a few examples of the wonderful increase of bird life in Denver, due mainly to man's alterations in the physical and floral conditions of the region.

The following named birds have been recorded in the past as having been observed (or taken) "in Denver" or "near Denver":

Eared Grebe
Franklin's Gull
Arctic Tern
Double-crested Cormorant
Mottled Duck
Wood Duck
Old Wife
Surf Scoter
Glossy Ibis
White-faced Glossy Ibis
Wood Ibis
Little Brown Crane
Black Rail
Stilt Sandpiper
Golden Plover
Snowy Owl
Bobolink
Rusty Blackbird
Purple Finch
Eastern Goldfinch
White-throated Sparrow
Oregon Junco
Indigo Bunting
Palm Warbler
Blue-grey Gnatcatcher

While many of the above named birds unquestionably may have been seen or taken within the present *limits* of Denver, nevertheless it has been so often impossible to determine, from the published record, exactly where the species was seen or taken, that it has been deemed wisest to restrict the following annotated list to the species seen by the present writer within such *limits,* which may be outlined approximately as follows: on the north by West 48th and West 52d Avenues, on the west by Sheridan Boulevard, on the south by Yale Avenue and on the east by Yosemite Street; these limits enclose an area of a little more than fifty-eight square miles.

The list comprises all the species seen by the writer in Denver during the past twenty-three years, and he alone (exceptions noted) is responsible for the correctness of such records.[1]

No attempt has been made to include such other birds as are known to occur in the immediately contiguous areas of Riverside, and Fairmont cemeteries, nor in the adjoining towns of Aurora, Englewood, and Edgewater.

The writer is confident that a much larger number, than this list shows, of bird species visit Denver from year to year; in order to make such a list complete, however, one would have to make regular daily observations, a systematic study obviously impossible to one whose vocation commands most of his time for other purposes.

A visitor to Denver should not be disappointed if many of the species herein listed are not seen during a brief sojourn in the city, as many of the birds of the list are of irregular occurrence; nor should a visitor feel that it is useless to look for birds in the district under consideration during the season when nature is asleep. No month in the year in Denver is without its birds, and a street car will take one quickly to one of the larger parks, where in any season some

[1] **For the sake of relative completeness twenty-nine other species recorded by Cooke in his list of Colorado Birds, as having been seen or taken in Denver, are herein included, and so indicated.**

phase of our native bird life is certain to be seen. Furthermore, the writer urges the bird lover who is not very familiar with western birds, to visit the Colorado Museum of Natural History (in City Park) where are to be found comprehensive and graphic illustrations of a large number of Colorado birds, in the mounted specimens and groups displayed in the Museum rooms.

In trying to give some idea as to the relative abundance of the different species, the writer has done so in comparative terms only. In such matters the chances of experience and the personal equation cannot fail to enter, hence the terms used to qualify a bird's abundance are largely relative, and must be taken as such, and as such only.

1. *Stercorarius parasiticus*—Parasitic Jaeger. Cooke; by Smith, 1889.

2. *Larus argentatus*—Herring Gull. Cooke; by Smith, 1883.

3. *Larus atricilla*—Laughing Gull. Cooke; by Smith, 1889.

4. *Larus philadelphia*—Bonaparte's Gull. Cooke.

5. *Xema sabini*—Sabine's Gull. Cooke.

6. *Phalacrocorax vigua mexicanus*—Mexican Cormorant. Cooke; by Felger.

7. *Pelecanus erythrorhynchos*—White Pelican. A flock of more than forty seen flying over Montclair June 14, 1913.

8. *Anas platyrhynchos*—Mallard. Common during migration in all the park lakes, and in wet places of the outskirts; also along the Platte. Probably breeds with the domesticated species in City Park. Arrives in the late winter months, as soon as there is open water, i.e. February.

9. *Chaulelasmus streperus*—Gadwall. Not infrequent in Washington and City Parks during migration. Arrives a little after the mallard.

10. *Mareca americana*—Baldpate. Noted in City Park, Washington Park, and University Park, as a migrant. Arrives about the middle of March, and reappears the last week in October.

11. *Nettion carolinense*—Green-wing Teal. Seen in Washington Park, October 17, 1896.

12. *Querquedula discors*—Blue-wing Teal. Noted in City Park, February 4, 1916, and April 24, 1917.

13. *Spatula clypeata*—Shoveller. Fairly common in the various park lakes and flood-water areas in the outskirts during migration; seen from March 18 to June 16, and as early as September 26. Becomes very tame in City Park lakes, if undisturbed.

14. *Dafila acuta*—Pintail Duck. Noted in City Park, March 31, 1913.

15. *Marila americana*—Redhead. Frequent in City Park during migration; has been seen there in two different years, all summer, and would doubtless breed if undisturbed. Becomes very tame.

16. *Marila valisineria*—Canvas-back Duck. A flock of fourteen seen in City Park, March 17, 1917.

17. *Marila affinis*—Lesser Scaup Duck or Bluebill. Seen in City Park, March 17 and April 24, and in Washington Park, April 25, 1917.

18. *Clangula islandica*—Barrow's Golden-eye. One noted in City Park, November 15, 1898.

19. *Oidemia deglandi*—White-winged Scoter. Cooke; by Smith, 1890.

20. *Branta canadensis canadensis*—Canada Goose. One shot in Washington Park, October, 1895, and a large flock of geese, probably of this species, seen flying over City Park, February 21, 1914.

21. *Ixobrychus exilis*—Least Bittern. Cooke; by Borchert, 1898.

22. *Ardea herodias herodias*—Great Blue Heron. One seen June 16, 1914, in a flood-water pond in Montclair.

23. *Egretta candidissima candidissima*—Snowy Heron. Cooke; by Felger.

24. *Nycticorax nycticorax nævius*—Black-crown Night Heron. Has been seen at various dates from March to July, in City Park, Montclair, and flying over Cheesman Park.

25. *Porzana carolina*—Sora Rail. One found wounded in City Park, September 14, 1911, by Dr. Leonard Freeman.

26. *Fulica americana*—Coot. Not infrequent in City Park, and observed once flying over Cheesman Park.

27. *Steganopus tricolor*—Wilson's Phalarope. Seen in Montclair, June 16, 1914.

28. *Philohela minor*—Woodcock. One seen in University Park, June 8, 1895.

29. *Gallinago delicata*—Jack Snipe, Wilson's Snipe. Detected in University Park, June 4, 1895, and June 5, 1896.

30. *Macrorhamphus griseus scolopaceus*—Long-billed Dowitcher. Cooke; by Henshaw, 1873.

31. *Calidris leucophæa*—Sanderling. Cooke; by Smith, 1888.

32. *Totanus melanoleucus*—Greater Yellow-legs. Two seen in Washington Park, April 19, 1917.

33. *Helodromas solitarius cinnamomeus*—Western Solitary Sandpiper. Seen in University Park, September 2, 1896, and in City Park, August 22 and 23, 1913.

34. *Bartramia longicauda*—Upland Plover. Two noted in City Park, April 18, 1912.

35. *Actitis macularia*—Spotted Sandpiper. Occasionally seen in City Park and Washington Park, during June and September.

36. *Numenius americanus*—Long-billed Curlew. Seen once in Washington Park, July 3, 1896.

37. *Squatarola squatarola*—Black-bellied Plover. Cooke.

38. *Oxyechus vociferus*—Killdeer. Not uncommon in the outskirts, and frequently seen in City and Washington Parks. Arrives in March and leaves in December; breeds in the outskirts. Seen also in Cheesman Park, December 5, 1913, and April 24, 1917.

39. *Podasocys montanus*—Mountain Plover. Taken once, in University Park, July 3, 1896.

40. *Arenaria interpres interpres*—Turnstone. Cooke; by Smith, 1890.

41. *Phasianus torquatus*—Ring-neck Pheasant. Introduced. Becoming common; resident throughout the year and breeds in all the large parks.

42. *Zenaidura macroura marginella*—Western Mourning Dove. Frequent in all the larger parks, and in the outskirts. Arrives in March and leaves in October. Breeds occasionally in Cheesman and City Parks.

43. *Cathartes aura septentrionalis*—Turkey Buzzard. Uncommon and irregular visitor. Noted soaring over City Park and University Park.

44. *Circus hudsonius*—Marsh Hawk. Frequent but irregular visitor to City Park, University Park, Country Club, and Montclair, from July to December.

45. *Accipiter velox*—Sharp-shinned Hawk. Frequently seen during April, in migration in Cheesman Park; and in the fall, in the center of the city, i.e. on the court house grounds, December 8, 1913.

46. *Accipiter cooperi*—Cooper's Hawk. One seen in University Park, May 25, 1896.

47. *Buteo borealis calurus*—Western Red-tail Hawk. Casual only within city limits; City Park, May 9, 1912, and Montclair, October 28, 1914.

48. *Buteo swainsoni*—Swainson's Hawk. Observed once at University Park, September 26, 1896, and Montclair, April 24, 1917.

49. *Archibuteo lagopus sancti-johannis*—American Rough-leg Hawk. An irregular winter visitor; in City Park and Montclair, December to February.

50. *Archibuteo ferrugineus*—Ferruginous Rough-leg. Detected in Montclair, April 17, 1916.

51. *Falco mexicanus*—Prairie Falcon. A fall visitor to University Park, City Park, and Cheesman Park; September to December.

52. *Falco columbarius columbarius*—Pigeon Hawk. A rare vis-

itor during migration; University Park, October 17, 1896, and Cheesman Park, January 24, 1904, and May 7, 1917.

53. *Falco columbarius richardsoni*—Richardson's Merlin. Frequent in City Park, and even "down town," during the fall migration. Noted at 12th Avenue and Logan Street, November 13, 1913.

54. *Falco sparverius phalæna*—Desert Sparrow Hawk. Frequent in the outskirts, and occasional in all the parks; bulk arrive in April and leave in October, but a few winter at times. Breeds in outskirts.

55. *Pandion haliaëtus carolinensis*—Osprey. One seen in City Park, May 2, 1914, and two, May 19, 1917.

56. *Aluco pratincola*—Barn Owl. One seen by Mr. A. T. Allen on Clayton Street, between Ninth and Tenth Avenues, December 10, 1909.

57. *Asio wilsonianus*—Long-eared Owl. A frequent visitor to all the parks, and occasionally in the residential portions, i.e. one having been caught at Eleventh Avenue and Pearl Street, April 23, 1916. Most commonly seen in the parks in April.

58. *Asio flammeus*—Short-eared Owl. Seen once in University Park, December 23, 1897, and once in Cheesman Park, March 6, 1917.

59. *Cryptoglaux acadica acadica*—Saw-whet Owl. Observed once in Cheesman Park, March 10, 1917.

60. *Otus asio maxwelliæ*—Rocky Mountain Screech Owl. Two records; at University Park, June 6, 1896, and Cheesman Park, March 15, 1917.

61. *Speotyto cunicularia hypogæa*—Burrowing Owl. Not uncommon in the suburbs, and seen occasionally in all the parks; from April to October. Breeds in suburbs.

62. *Glaucidium gnoma gnoma*—Pigmy Owl. Cooke; by Smith, 1888.

63. *Conuropsis carolinensis*—Carolina Paroquet. Cooke, 1861-1862.

64. *Coccyzus americanus americanus*—Yellow-bill Cuckoo. One seen in Cheesman Park, June 22, 1915, and one June 17, 1917.

65. *Ceryl alcyon alcyon*—Kingfisher. Seen in Washington Park, September 14, 1910, and one in City Park, September 20, 1913.

66. *Dryobates villosus monticola*—Rocky Mountain Hairy Woodpecker. Frequently seen in all the parks, and in various parts of the city, from September to April.

67. *Melanerpes erythrocephalus*—Red-headed Woodpecker. Occurs in all the parks and the suburbs, and breeds in suitable places in the outskirts. Arrives in April and departs in October.

68. *Asyndesmus lewisi*—Lewis's Woodpecker. Seen June 17.

1897, at University Park, and in Berkeley Park, August 29, 1914. Nested in Overland Park during the summer of 1917.

69. *Colaptes auratus luteus*—Northern Flicker. Rare straggler, but becoming more frequent each year; seen in Cheesman Park twice in 1915, and twice in 1916.

70. *Colaptes cafer collaris*—Red-shafted Flicker. Common resident, and breeds even near center of city, i.e. Grant Street and Nineteenth Avenue.

71. *Phalænoptilus nuttalli nuttalli*—Poorwill. Infrequent migrant; Cheesman Park, May 15, 1914, and May 19 and 25, 1916.

[1]72. *Chordeiles virginianus henryi*—Western Nighthawk. Common summer resident; arrives about May 15, and departs about October 1; nests in the suburbs.

73. *Chordeiles virginianus sennetti*—Sennett's Nighthawk. Frequent during migration, on dates similar to the above.

74. *Cypseloides niger borealis*—Black Swift. Cooke; once, 1884.

75. *Selasphorus platycercus*—Broad-tail Hummingbird. Frequent in all the parks, and in the outlying districts; arrives about May 15, and leaves about the middle of September. Breeds.

76. *Tyrannus tyrannus*—Kingbird. Fairly common in all the parks and outskirts. Arrives early in May and departs late in September. Breeds.

77. *Tyrannus verticalis*—Arkansas Kingbird. Slightly more common than the preceding in same areas; arrives about April 15 and departs about September 15. Breeds, the young being out of the nest by July 1.

78. *Tyrannus vociferans*—Cassin's Kingbird. Seen once, at Colfax and Clayton Streets, May 17, 1908; and in City Park, July 11, 1917.

79. *Sayornis sayus*—Say's Phœbe. Occurs sparingly in all the parks and the outskirts; arrives the last week in March and departs the last week in September. Breeds; young out of nest by July 15.

80. *Myiochanes richardsoni richardsoni*—Western Wood Pewee. Seen occasionally during the summer in City Park and Cheesman Park. Probably breeds; earliest date noted, May 13, and the latest, September 18.

81. *Otocoris alpestris praticola*—Prairie Horned Lark. Cooke.

82. *Otocoris alpestris leucolæma*—Desert Horned Lark. Resident, and breeds in the outskirts; not common in the parks except

[1] Until the American Ornithologists Union accepts a new classification for the various species and races of nighthawks found in the United States, the light and dark races occurring in Denver may best be listed as above.

in winter. The young are often out of the nest by the first week in April.

83. *Pica pica hudsonia*—Magpie. Resident, and breeds in the outskirts; occurs in the parks more frequently in winter.

84. *Cyanocitta stelleri diademata*—Long-crested Jay. Irregular winter visitor and seen occasionally in all the larger parks. Occurs from the middle of December to May.

85. *Aphelocoma woodhousei*—Woodhouse's Jay. Infrequent fall and spring visitor in Cheesman Park, coming in April, May, and September.

86. *Corvus corax sinuatus*—Raven. One seen over City Park, April 17, 1902.

87. *Corvus cryptoleucus*—White-necked Raven. Cooke; by Aiken, 1871.

88. *Corvus brachyrhynchos brachyrhynchos*—Crow. One noticed flying over Eleventh Avenue and Corona Street, December 7, 1913; and one seen in Cheesman Park, May 1, 1917; is becoming increasingly common to the northeast of the city.

89. *Cyanocephalus cyanocephalus*—Pinon Jay. Rare visitor; one observed in Cheesman Park, May 12, 1913, and one in the same place, September 23, 1914.

90. *Molothrus ater ater*—Cowbird. One seen in Cheesman Park, June 19, 1914.

91. *Xanthocephalus xanthocephalus*—Yellow-head Blackbird. An occasional straggler to all the parks and seen more frequently in the suburbs, where, in the suitable places, i.e. "Manhattan Beach," it breeds. Some remain all winter. Bulk leave in the late fall.

92. *Agelaius phœniceus fortis*—Red-wing Blackbird. Common in the parks with lakes, where it would breed if left undisturbed; also seen in other parks, and many winter in the outskirts.

93. *Sturnella neglecta*—Western Meadowlark. Common all over, and many winter in the suburbs; bulk arrive in March and leave in October. Breeds.

94. *Icterus spurius*—Orchard Oriole. Cooke; by Allen, 1872.

95. *Icterus galbula*—Baltimore Oriole. One seen in City Park, June 28, 1897.

96. *Icterus bullocki*—Bullock's Oriole. Now fairly common all over the city, but formerly more so; bulk arrive the first week in May, and depart towards the end of September. Breeds.

97. *Euphagus cyanocephalus*—Brewer's Blackbird. Frequent in all the parks, and in the outskirts. Arrives early in April, and departs late in October. Breeds, young being found in nest by the first week in June.

98. *Quiscalus quiscula æneus*—Bronzed Grackle. Occurs all

over the city during migration in good sized flocks; arrives late in April or early in May; numerous till last of June; reappears in large numbers early in September and stays until late in October. Breeds in City Park.

99. *Hesperiphona vespertina montana*—Western Evening Grosbeak. Rare visitor; seen at the corner of East Sixteenth Avenue and Washington Street, January 11, 1901, and in Cheesman Park, April 12 and 20, 1911.

100. *Carpodacus cassini*—Cassin's Purple Finch. Noted in Cheesman Park, February 29, 1912.

101. *Carpodacus mexicanus frontalis*—House Finch. Our characteristic native city bird; resident and abundant. Breeds from early in April to early in August.

102. *Loxia curvirostra minor*—Crossbill. Irregular winter visitor; City Park, November 9, 1898, and March 9, 20, and 28, 1899; Cheesman Park, December 6, 1913, and October 19, 1914.

103. *Acanthis linaria linaria*—Lesser Redpoll. Rare winter visitor; University Park, February 18, 1897, and Cheesman Park, December 24, 1916, and March 13 and 31, 1917.

104. *Astragalinus tristis pallidus*—Pale Goldfinch. City Park, May 14, 1914.

105. *Astragalinus psaltria psaltria*—Arkansas Goldfinch. Frequent summer resident in all the parks. Arrives late in March and remains until October. Breeds, building late, beginning nesting about August 1.

106. *Spinus pinus*—Pine Siskin. Common summer resident; often throughout the whole year. Bulk arrive early in March, and many linger till June. Starts nesting about the middle of March. Eggs sometimes found by April 7. Majority disappear in June, probably going to higher altitudes to nest a second time.

107. *Plectrophenax nivalis nivalis*—Snow Bunting. Cooke.

108. *Passer domesticus*—English Sparrow. Ubiquitous. Breeds from March to October. First seen in Denver, by the writer, at the Union depot, in June, 1894.

109. *Calcarius lapponicus alascensis*—Alaska Longspur. One taken at University Park, February 18, 1895.

110. *Calcarius ornatus*—Chestnut-collar Longspur. One seen in Montclair, June 14, 1914.

111. *Poœcetes gramineus confinis*—Western Vesper Sparrow. Infrequent visitor in City Park and Washington Park, April and September; more frequent in outskirts. Breeds.

112. *Passerculus sandwichensis alaudinus*—Western Savannah Sparrow. Taken at University Park, October 1, 1896, and July 1, 1897.

113. *Chondestes grammacus strigatus*—Western Lark Sparrow. Frequent summer resident in the parks and suburbs; arrives early in May and departs about the middle of September. Breeds.

114. *Zonotrichia leucophrys leucophrys*—White-crown Sparrow. Seen in migration, in Cheesman Park, May 3 to about May 15; City Park, April 29, 1917.

115. *Zonotrichia leucophrys gambeli*—Gambell's Sparrow. Common in all the parks in migration, from April 22 to May 21, and September 7 to October 10.

116. *Spizella monticola ochracea*—Western Tree Sparrow. Uncommon winter visitor, University Park, January 1, 1895, and October 26, 1896; Washington Park, January 17, and March 18, 1917.

117. *Spizella passerina arizonæ*—Western Chipping Sparrow. Common summer resident, all over area; arrives about April 1, and leaves about September 15. Breeds.

118. *Spizella pallida*—Clay-colored Sparrow. Common in migration in all of the parks, and in the outskirts; earliest spring date, May 1, and latest fall date, October 25.

119. *Spizella breweri*—Brewer's Sparrow. Fairly frequent in migration, in Cheesman Park and Washington Park; earliest spring date, May 8, and latest fall date, September 28.

120. *Junco aikeni*—White-wing Junco. Infrequent winter visitor; University Park, January 1, 1896, and Cheesman Park, November 8, 1914, and March 5, 1917.

121. *Junco hyemalis hyemalis*—Slate-colored Junco. One detected in Cheesman Park, January 21, 1917.

122. *Junco hyemalis connectens*—Shufeldt's Junco. Frequent winter visitor in Cheesman Park; arrives early in October, and lingers until late in March.

123. *Junco hyemalis montanus*—Montana Junco. Frequent winter visitor; arrives in December and leaves with the preceding form.

124. *Junco hyemalis mearnsi*—Pink-sided Junco. Common winter resident, arriving about the middle of September, and leaving late in April.

125. *Junco phæonotus dorsalis*—Red-back Junco. An uncommon winter visitor; Cheesman Park, February 27, 1912, and February 25, 1916; May 8, 1917.

126. *Junco phæonotus caniceps*—Gray-head Junco. Frequent visitor to Cheesman Park in winter; October 8 to April 22.

127. *Melospiza melodia montana*—Mountain Song Sparrow. Uncommon summer resident within city limits; seen principally along the Platte and Cherry Creek, but also in Cheesman Park and City Park. Breeds, in outskirts.

128. *Melospiza lincolni lincolni*—Lincoln's Sparrow. University Park, June 2, 1896.

129. *Pipilo maculatus arcticus*—Arctic Towhee. One detected in Montclair, January 1, 1913.

130. *Oreospiza chlorura*—Green-tail Towhee. Uncommon migrant; City Park, May 10, 1908, and May 12, 1917, and Cheesman Park, May 3, and September 23 to 30, 1911.

131. *Zamelodia melanocephala*—Black-headed Grosbeak. Common summer resident, throughout the city; arrives about May 1, and departs about September 10. Breeds; eggs sometimes laid by the last of May.

132. *Passerina amœna*—Lazuli Bunting. Infrequent summer resident, but more frequent as a migrant; arrives the last week in May, and leaves the last week in August. Nested in Cheesman Park, the last week in June, 1916.

133. *Calamospiza melanocorys*—Lark Bunting. Infrequent summer resident in the parks, but common in the outskirts; arrives early in May, and departs about September 15. Breeds in the outskirts.

134. *Piranga ludoviciana*—Western Tanager. Uncommon migrant; Washington Park, May 23-25, Cheesman Park, June 3, August 29, and September 15, 23.

135. *Piranga erythromelas*—Scarlet Tanager. A male seen in Cheesman Park, June 6, 1912.

*136. *Piranga rubra cooperi*—Cooper's Tanager. Cooke; by Henshaw, 1873.

137. *Petrochelidon lunifrons lunifrons*—Eave Swallow. Common in migration. Now infrequent breeder in outskirts. Arrives late in April and departs as late as October 3.

138. *Hirundo erythrogastra*—Barn Swallow. Common in migration; arrives about May 1, and leaves about the middle of September. Infrequent breeder in outskirts.

139. *Iridoprocne bicolor*—Tree Swallow. Becoming quite uncommon, even in migration. Not detected breeding for years. Arrives with the preceding species, and not seen after September 1.

140. *Tachycineta thalassina lepida*—Northern Violet-green Swallow. A large flock in Washington Park, May 22 and 25, 1917.

141. *Stelgidopteryx serripennis*—Rough-wing Swallow, "Sand Martin." Common in migration; arrives about the middle of April, and departs the last of August; a few breed in the outskirts.

142. *Bombycilla garrula*—Bohemian Waxwing. Irregular winter visitor; a small flock in Berkeley, February 4; and on Clay-

*This record is based on a misidentification, the skin (now in the Colorado Museum of Natural History) proving, on reëxamination, to be one of Piranga rubra rubra. Summer Tanager.

ton Street, between Fourteenth and Colfax Avenues, February 5, 16, and 18, 1899; all over the city in great numbers, from February 22 to April 8, 1917, when the last two were seen in Cheesman Park.

143. *Bombycilla cedrorum*—Cedar Waxwing. Seen in Berkeley, February, 1906.

144. *Lanius borealis*—Great Northern Shrike. Infrequent winter resident; City Park, November 3, December 24, and March 6; Cheesman Park, November 22 and December 25.

145. *Lanius ludovicianus excubitorides*—White-rump Shrike. Irregular visitor; City Park, April 27 and September 7; Cheesman Park, April 29.

146. *Vireosylva olivacea*—Red-eyed Vireo. Cooke; by Smith, 1892.

147. *Vireosylva gilva swainsoni*—Western Warbling Vireo. Fairly common summer resident in all the parks; arrives early in May and remains until late in August. Breeds.

148. *Lanivireo solitarius cassini*—Cassin's Vireo. Previous to 1915, was an irregular visitor during migration. Some stayed in all the parks all of the summer of 1916, the last being seen on September 8; the first being seen May 30.

149. *Lanivireo solitarius plumbeus*—Plumbeus Vireo. Frequent migrant; a few remain all summer in the city and in Cheesman Park, May 31 to September 11.

150. *Vireo belli belli*—Bell's Vireo. Cooke; by Smith, 1903.

151. *Vermivora virginiæ*—Virginia Warbler. Detected once in Cheesman Park, September 7, 1915.

152. *Vermivora celata celata*—Orange-crown Warbler. One seen in Cheesman's Park, May 3, 1914.

153. *Compsothlypis americana usneæ*—Northern Parula Warbler. Cooke; by Smith, 1904.

154. *Dendroica æstiva æstiva*—Yellow Warbler. Common summer resident all over the city; arrives the first week in May, and departs late in August. Breeds.

155. *Dendroica cærulescens cærulescens*—Black-throated Blue Warbler. One seen in Cheesman Park, June 13 and 14, 1915.

156. *Dendroica coronata*—Myrtle Warbler. Not common, but seen during migration in all the parks. Earliest date, April 29, latest, May 23.

157. *Dendroica auduboni auduboni*—Audubon's Warbler. Seen in University Park, October 7, 1896, and in City Park, April 29 to May 20, 1917.

158. *Dendroica magnolia*—Magnolia Warbler. One seen in Cheesman Park, May 20, 1913.

159. *Dendroica cerulea*—Cerulean Warbler. Cooke; by Henshaw, 1873.

160. *Seirus aurocapillus*—Ovenbird. Cooke; by Wernigk, 1862.

161. *Seiurus noveboracensis notabilis*—Grinnell's Water-Thrush. Cooke.

162. *Oporornis tolmiei*—Macgillivray's Warbler. Seen occasionally in Cheesman Park; August 27, 1912; September 6, 1913; October 10 to 13, 1914, and September 29, 1916.

163. *Geothlypis trichas occidentalis*—Western Yellow-throat. "Manhattan Beach," June 8 and 10, 1917.

164. *Icteria virens longicauda*—Long-tail Chat. One seen on the Platte River, near Overland Park, July 10, 1896.

165. *Oreoscoptes montanus*—Sage Thrasher. Fairly frequent in migration; seen in the outskirts and the parks only in the fall, September 5 to 15.

166. *Mimus polyglottos leucopterus*—Western Mockingbird. Irregular summer resident. Seen as early as March 8, in Cheesman Park, and eggs have been found in University Park by May 26; leaves by the first week in August. Would doubtless be much more common, were it not so persistently hunted to secure its young for cage birds.

167. *Dumetella carolinensis*—Catbird. Noticed in Cheesman Park, August 31 and September 24, 1910.

168. *Toxostoma rufum*—Brown Thrasher. In Montclair, May 25, 1917.

169. *Salpinctes obsoletus obsoletus*—Rock Wren. Seen occasionally during migration, in all the parks and in the outskirts, from April 27 to June 15, and from August 19 to September 25.

170. *Catherpes mexicanus conspersus*—Canyon Wren. Infrequent migrant; Washington Park, May 8; Cheesman Park, September 13 and 18; Montclair, May 5.

171. *Troglodytes aëdon parkmani*—Western House Wren. Regular migrant and uncommon summer resident. Seen most often during the third week of May and the first week of September. Nested in Cheesman Park, the summer of 1917.

172. *Nannus hiemalis hiemalis*—Winter Wren. Seen in University Park, July 8, 1896, and in Cheesman Park, May 10, 1908.

173. *Certhia familiaris montana*—Rocky Mountain Creeper. Frequent winter visitor to all parts of the outskirts and the parks, and observed well "down town" once in a while; occurs from the last of December to the last of February.

174. *Sitta carolinensis nelsoni*—Rocky Mountain Nuthatch. Irregular visitor, Cheesman Park from August 17 to September 18, City Park, December 5.

175. *Sitta canadensis*—Red-breasted Nuthatch. Cheesman Park, November 3, 1910.

176. *Panthestes atricapillus septentrionalis*—Long-tail Chickadee. Regular winter visitor; arrives early in October and departs about April 15; often occurs well "down town."

177. *Panthestes gambeli gambeli*—Mountain Chickadee. Irregular winter visitor, Cheesman Park, October 29, 1915 to February 25, 1916, and seen occasionally all of the winter of 1916-17, in Cheesman Park.

178. *Regulus calendula calendula*—Ruby-crown Kinglet. Noted in City Park, May 29, 1907, and April 28 to May 8, 1917.

179. *Myadestes townsendi*—Townsend's Solitaire. Frequent in migration and occasionally a winter resident; has been noticed in City Park and Cheesman Park in February, April, August (24), September, October and December.

180. *Hylocichla fusccscens salicicola*—Willow Thrush. Seen in Cheesman Park, September 12, 1913, and June 9, 1917.

181. *Hylocichla guttata auduboni*—Audubon's Hermit Thrush. Frequent in migration in all the parks and at times well "down town"; arrives early in May, sometimes remains until late in June, and reappears late in August.

182. *Hylocichla guttata nanus*—Dwarf Hermit Thrush. Cooke; by Smith.

183. *Planesticus migratorius migratorius*—Eastern Robin. Seen wherever the next species occurs; not very common, but becoming more and more so each year. Breeds.

184. *Planesticus migratorius propinquus*—Western Robin. A common summer, and occasional winter, resident; the bulk appear about the middle of March and leave about the middle of October. Breeds, and eggs are often found by the middle of April.

185. *Sialia sialis sialis*—Eastern Bluebird. Cooke; by Dille, 1899.

186. *Sialia mexicana bairdi*—Chestnut-back Bluebird. One seen in Cheesman Park, April 9, 1907.

187. *Sialia currucoides*—Mountain Bluebird. An infrequent summer resident, but common in migration. Occurs most commonly from March to October, but also every other month in the year. Would be a common breeder, if not driven out by the English Sparrow.

HORNED LARKS IN THE PROVINCE OF QUEBEC

(*Otocoris alpestris praticola.*)

BY L. McI. TERRILL.

Towards the close of the long Canadian winter, the earliest signs of returning spring are very welcome, and none more so than that first small harbinger, the Prairie Horned Lark (*Otocoris alpestris praticola*). There comes a time during the latter part of February when the south wind and sun combine in softening the atmosphere. Should you attempt to look the sun in the face on such a day you will probably see spots or sun-dogs. The snow, too, is affected; it has a honey-combed appearance and dark patches point to fast-appearing soil. Railroad tracks, hillocks, and manure-piles in the open country are quite bare of snow and steaming with evaporating moisture. On such a day I fully expect to see the Prairie Horned Lark. They are easily recognized: sometimes a dark form will be seen walking or running gracefully over the snow, stopping to investigate places where the earth is showing; again a small company will be found sheltered in the lee of a manure-heap, particularly if the wind is high. Roadways, and especially railway tracks, are favourite feeding resorts.

The males arrive first and show little inclination towards flocking, often being seen singly, though sometimes in groups of from two to ten birds, especially when feeding on railway tracks or other places where grain and seeds are abundant. Frequently a sweet liquid song, delivered from some mound or fence-post, will be the first intimation of their arrival—the first spring song, and doubly sweet for that reason. If the weather is fine they usually sing on arrival, or soon after, and the song is more or less commonly heard throughout their residence here. This song is a difficult one to describe. One associates the name "lark" with all that is sweet and melodious, and although my acquaintance with the European Skylark is not first hand, its family name, from laudo (to

laud) is suggestive of song-ability. To laud, however, literally means "to praise to the skies," which is descriptive of a song-habit rather than song-ability. As with our own Lark its abandon and freedom of utterance are responsible for the saying "merry as a lark." It is a thorough exponent of the theory "Laugh and the world laughs with you," hence the terms "sky-larking," and "out for a lark."

Though our own lark "praticola" has similar mannerisms and delivery, the volume of its song is evidently considerably less, as the average pedestrian appears to know nothing about it.

Ones opinion is a little biased in its favour on hearing the first bird and the first song of spring, but after repetitions a scratchy or "screechy" quality is detected. Once, while crossing a wire fence, I was so uncharitable as to compare it with the squeaking of wires pulled through the staples—but then this self-same squeak was due to exertions in detaching myself from the uncharitable barbs. Another song, less common, though frequently heard during the nesting season, especially in the early morning and at twilight, is probably comparable in some degree to the performance of the European Skylark. Rising toward the sky, higher and higher, the bird gradually disappears from view, and while you are wondering what has become of it a glad song floats down, softened by distance, but still distinct. It consists mainly of several notes repeated over and over, sometimes as many as a dozen times. For brevity I write this in my note-book "the pump song." When I first heard it I was reminded of the action and distant sound of a rusty hand-pump in the dry season. The first notes are similar to the simple song, but the bird is in super-happy mood, and continues repeating the second bar, with a little screechy catch between each repetition, and finishes—just as the water reaches the spout of the pump—with a jumble of liquid notes, similar to the ending of the simple song. This song probably has the same significance as the aerial love song of the Woodcock, being most commonly heard when the female is incubating. I have

also frequently heard it delivered from a mound or other elevation on the ground.

Our earliest spring migrant, the Prairie Horned Lark, is also the most regular of the earlier birds, not excepting the Crow. A few Crows occasionally winter, but the Lark never, as far as I am aware.

Although the Prairie Horned Lark returns with the south wind it does not necessarily proclaim the passage of winter, as sometimes a month of wintry weather follows its return. However its tinkling song imbues us with at least a portion of its hopeful anticipation, and helps to tide over the bleak spots.

During fifteen years the average time of arrival at Montreal, by my records, was March 1st (February 29th for leap years): extreme dates were February 14 (1915) and March 9 (1905). This refers to the male bird, which arrives a week or more in advance of the female.

When in flight, with each sweeping undulation, or, as is often the case, at irregular intervals, the Lark emits a single whistled note, very similar to the first part of the Snowbird's flight notes, sometimes followed by a second note. To me these notes seem best expressed by the syllables "pee" and "Pee-u." While choosing a nesting site and during early nesting operations its vocal activity is especially marked. At this time they are often found in companies of three—two males courting one female. They do not seem to be very quarrelsome beyond chasing one another back and forth, but give vent to their feelings vocally. One of the most common utterances sounds something like "seet-te-sweet" or "seet-t'seet," with variations. Another musical call "pee-u-wee," or "pee," followed after a pause by "pee-u-wee" (with the accent on the last syllable), has a decided plover-like quality and is the principal note of alarm. This call is seldom or never uttered before nesting is well under way, and is often shortened to a whistled "pee-u," especially after the young are hatched.

During the period of incubation the Larks become more

quiet and their silence is pronounced when the young have left the nest. I have often watched one slipping away with an exaggerated slowness, proclaiming uneasiness by nervously picking at the soil, possibly with the pretense of feeding. Even with these indications it is not always easy to pick out the old-grass coloured backs of the young squatting motionless by some grass tuft.

A great deal has been written in confirmation of the theory that the Prairie Horned Lark has gradually extended its range eastward from the prairies. In any case it is not partial to thickly wooded or newly cleared land. In such a locality at Bury, Compton Co., Que., 125 miles, S. E. E. of Montreal, it was uncommon during the years 1899-1902. To the north, in the Laurentian Hills, I have seen it sparingly in the cleared valleys of the North, Rouge, and Lievre Rivers, as far as Mt. Laurier, at the end of the railroad, about 150 miles N. N. W. of Montreal. My observations, however, particularly with regard to nesting habits, refer to the valley of the St. Lawrence River, in the vicinity of Montreal. Here they are most abundant within a mile or two of the river shore. For nesting purposes, rolling pasture land with scant vegetation is preferred; often so poor as to produce only a growth of mosses and lichens. A sheep pasture is typical of the Lark's choice. Again they will be found associating with the Killdeer Plover, nesting in a stony field, or in one in which there is exposed rock strata. Sometimes other situations are chosen, such as the close cut stubble of grain fields, and once a nest was found in the furrow of a ploughed field.

As with other prairie nesting birds, suitability as a lookout point is a factor in the Lark's choice of a nesting site; an abrupt slope is never chosen. Cultivated fields in the vicinity of the nest are desired as the Lark feeds largely in ploughed land—in fact I have found it nesting most commonly within a few hundred yards of farm buildings; the neighborhood of woods and swamps is avoided.

The greater number of birds commence nesting during the

second or third week of April, according to the weather, although there are always a few earlier nesters. The earliest record I have was March 14th (1915), when a nest was found commenced. On April 2nd this nest held four young about one day from the shell.

While snow still covers the ground in late March or early April, the birds have little choice of a nesting place and naturally choose the crown of some small elevation, such places being the only suitable spots free of snow. When the soil is sufficiently thawed, and while it is still moist, a bowl-shaped cavity, four to five inches in diameter, is excavated. I have several times seen both birds quite close to these excavations, but have never been able to determine whether or not both assist in the work. The soil taken from the cavity is piled on one side and later becomes an adjunct of the nest, forming an embankment, which possibly serves as a wind-break. This excavated soil is always found in little balls, which tends to prove that it is always scraped out while the ground is wet.

When the excavation is complete the Lark collects material, to be found near at hand, short pieces of withered grasses, seed tops and roots of grass or grain, which is finally pressed into a thick walled nest, averaging, in outside diameter, 4 inches; inside, 2.4 inches; outside depth, 2.2 inches; inside depth, 1.8 inches. The rim of the nest is usually flush with the soil and is very neatly finished and blended with the surroundings, though there is no attempt at weaving or binding, and the nest readily falls to pieces when removed.

Material similar to the body of the nest is used for lining, while generally a little old thistle down is added, and sometimes a small feather or two. The number of eggs deposited is most commonly four; often three composes the set, rarely two, and on one occasion I knew of five being laid.

Eggs of this species exhibit less variation in markings than those of most birds. The main peculiarity in a large number of local specimens lies in the comparatively uniform colouration, pigment being distributed in minute dots, usually

over the entire shell, with a slight tendency to form a wreath at the larger end.

Absence of blotches and the pale-coloured pigment produce a delicate appearance—a fragile looking egg indeed, to be found amidst banks of snow.

Variation in shape and size is considerable. The largest set examined averaged .92x.65 of an inch; the smallest, .78x.57; while the average size of ten sets was .85x.61.

The largest and smallest individual eggs were .96x.66 and .76x.57.

One would think that the Lark, nesting so early in the season, would sit very closely, but apparently such is not the case. It is the exception to even see the bird leave its nest, and during the early stages of incubation it will remain at a distance, as long as there is a human being in the vicinity.

On a few occasions I have flushed a sitting bird when within a few feet of her, and at other times, particularly when incubation was advanced, I have seen them leave at distances varying up to 150 yards. On all occasions the departure was similar, a quick bound into the air, directly from the nest, when the bird would go dipping away and alight at some distance. When flushed from its nest or from the vicinity it is not always easy to distinguish the Lark from the Vesper Sparrow, unless you see it leave the nest. It invariably flies away in silence, contrary to its usual custom. However if you watch the bird as it skims the surface of the soil in prolonged undulations, its larger size and the fact that it generally alights on the ground and stands erect to peer at the intruder, will usually serve to identify it.

When the Larks are at all vociferous you may take it for granted that the nest, if there is one, is at some distance.

I have frequently attempted to watch a bird return to its nest, but with the excepion of a few instances, decided that I was not a man of leisure. Occasionally the bird is provoked into disclosing the nesting site. On April 16, 1905, during a sudden snow flurry, a Lark passed over my head, quickly veered toward the ground and vanished! Approach-

ing the spot I looked in vain for the bird until I finally caught sight of her flying away, and soon found the nest, plainly visible with its single egg, the only dark spot in the snow-covered area. The following year, on April 1, while trying my skill, pitching a heavy stone with two companions, a Lark flew towards us, and dipping close to the ground flew over the spot where the stone had fallen. We soon found a newly completed nest within a few feet of this stone.

Inclement and uncertain weather is naturally the chief vicissitude of a ground nesting bird at this early date. After the Larks have commenced nesting we frequently have storms with a fall of wet snow or rain, followed by a lower temperature, sufficient to glaze the fields with an icy covering. This is often disastrous and the birds have to recommence. These conditions were especially noticeable during the springs of 1907, 1912-13-14-15.

After a period of eleven days' incubation the young make their appearance, and during early growth their parents spend much time in adjacent ploughed fields.

Although I have little exact data on the food supplied to the young, I know that many insects in the larval stage are taken, in fact, at this season most insects are still in that condition. I believe that the early nesting of this species is more than merely coincident with the operations of ploughing and harrowing the soil, which are usually in progress at the time young Larks are hatched. This repeated working of the soil keeps a constant supply of larva exposed at a time when the need of the Larks is greatest and competition with other species least. They are thoroughly in accord with the proverb "It's the early bird that catches the worm." In this respect it would be interesting to compare the habits of Larks nesting in virgin prairie districts. Unfortunately I have found little data, beyond nesting dates, for prairie-nesting Larks. Some authorities describe western and southern birds as comparatively late, but whether for birds nesting in an untilled region is not stated.

The male bird is as busy as his mate at this season and has

little time for song, usually confining his efforts to early morning and late afternoon. So far as I have observed, the female alone incubates, but at least the male assists in feeding the young, and is very solicitous of its welfare. On one occasion I almost stepped on a young Lark, when the male bird jumped into the air as if to attack me. Returning to his perch a few feet distant he stretched himself, head up and horns raised, to such an extent as to resemble a Killdeer Plover more than a Lark. On my retiring a few feet he flew to the young bird and fed it.

Perhaps early nesting Larks have more troubles to contend with in raising their young than most birds. Late snowstorms causing nest-abandonment have been previously mentioned, but they have other enemies. At the time incubation is completed many birds of prey have arrived, and considering that the smaller migrants present are comparatively few, the Larks are bound to receive considerable attention. Possibly predacious animals also take their toll, although, happily, I have no records. The protectively-coloured backs of the adult Larks, with the highly developed watchfulness of this species, keeps them fairly safe from enemies that both soar and creep. It is the young that suffer: of four nests under observation in one locality, during the spring of 1915, only in one instance did the young safely leave the nest. One of these, found April 11, and revisited on April 17, contained broken egg-shells on the latter date, and apparently had been trodden on by some animal.

Another bird safely hatched her young and reared them until they were almost ready to leave the nest. On April 25 the well-spotted feathers, wind-blown in every direction, were all that remained of this brood. This was probably the work of a low-lying Marsh Hawk, which I had several times seen diligently hunting in the vicinity.

Another nest containing a single egg on April 25 was abandoned for some uexplained reason. The fourth nest, found commenced on April 5 (a mere hollow, with no nest material) contained three eggs on the 11th and four on the

12th, and on the 23rd newly-hatched young (perhaps ten hours from the shell), with eyelids unopened and small patches of grayish-white down showing.

Visiting this nest again on the 25th I found considerable development in the nestlings—eyes well-opened and good sized patches of down on either side of the forehead, occiput, back and wings. How narrowly this brood also missed a tragic end was apparent in the track of a farmer's wagon which had passed a few feet away, while cow-manure had been scattered in all directions, one fork-full almost touching the nest. On my next visit (May 1) the condition of the nest showed that the young had recently left, probably the same morning.

In this instance the entire operation, from the time the nest was commenced until the young had vacated, occupied twenty-five days, or possibly a little less. Three days were occupied in nest-construction, four in which to deposit the eggs, eleven (plus) for incubation, and seven to mature the young sufficiently to enable them to leave the nest.

Having devoted very little time to the Larks during May and June, my notes at this period are very scanty, although I am well aware that this species nests a second and possibly a third time.

After a period of quiet, incident to the care of the first brood, the song becomes more frequent during the month of May. The wide first-nesting range, from late March throughout April, makes it difficult to say whether birds found breeding in early May have already raised a brood or not. May 15 (1915), I flushed a Lark near a fresh excavation. By the 22nd this nest was fully lined, but for some reason was later deserted. This was probably a second nesting, as I found another nest, about fifty yards distant, in which a brood had been raised earlier in the season.

During the heat of summer the Prairie Horned Lark is not much in evidence and is usually to be seen in family groups. It sings less and the earlier activity is gone. However, the cause of seeming scarcity is due more to the fact

that one is detracted by the many other birds with more pronounced songs and actions. From the latter part of August, throughout the fall months, it is more gregarious—family groups collecting into small flocks. This is especially noticeable on river shores, where they gather to feed, often in company with various species of sandpiper and plover, and later in the season with Pipits, Horned Larks (*alpestris*), and Snowbirds; hence the common appellation "shore-lark." Flocks are seldom very large—more often from twenty to fifty birds—and are not compact as flocks, say, of the European Sparrow, which arise in a cloud; whereas, the Larks, with a startled whistle, keep bounding up just ahead of you, and a company of fifty will sometimes occupy several acres. The Prairie Horned Lark evidently finds the fall weather agreeable, as it sings more commonly after the extreme heat of summer is passed. Towards the end of October migration is at its height, and usually by the beginning of November few remain. My latest record was November 21 (1915).

Following is a summary of migration for the past nine-

		First Arrivals	Earliest Song	First Nesting	Condition	Latest Song	Last Seen
Bury, Que.	1897	March 6					
	1898 (mated)	March 15	March 15				
	1899	March 13	March 13				
	1900	March 18					
	1901	March 8					
	1902	March 9					Oct. 25
	1903	March 7		April 26	Four young a few days old		Oct. 11
	1904	March 6				Oct. 23	Oct. 23
	1905	March 9	March 19	April 16	with one egg		Oct. 22
	1906	Feb. 23	March 4	April 1	two nests fully lined		Nov. 18
	1907	Feb. 24		April 7	two nests under construction		Oct. 20
	1908	March 1	March 8	April 12	nest commenced		Nov. 15
	1909	Feb. 28	Feb. 28	April 4	three fresh eggs	Oct. 25	Oct. 25
	1910 (mated)	March 5	March 6	March 27	two nests almost completed		Nov. 6
	1911 (mated)	March 5		April 9	three nests commenced	Oct. 15	Nov. 5
	1912 (mated)	March 10		April 7	five nests, one completed	Oct. 6	Nov. 10
	1913	Feb. 23	March 16	March 23	four nests, one completed	Oct. 12	Nov. 2
	1914	March 8	April 8	April 5	one completed nest		Nov. 15
	1915	Feb. 14		March 14	nest commenced	Oct. 24	Nov. 21

teen years. It will be noticed that four records of spring arrivals are for mated birds. Allowing for a lapse of at least seven days between the arrival of male and female, and eliminating the four records made at Bury, Que., we have an average date of arrival at Montreal, during fifteen years, of March 1 (Feb. 29 for leap years).

The thirteen records of fall departure give November 3 as the average date on which the last birds were seen.

THE HORNED LARK (*Octoris alpestris alpestris*).

While watching Prairie Horned Larks during April, when they were paired and nesting, it has been customary for me to see flocks of larks, sometimes as many as a hundred, but usually between fifteen and fifty birds. Formerly I thought these "*praticola*" on their way to more northern districts, but later investigation invariably proved them to be *O. a. alpestris*. In the vicinity of Montreal they usually arrive more than a month later than "praticola"; the average time during seven years being April 11.

Throughout April I have many times had the opportunity of direct comparison between the two species. The contrast between a solitary Prairie Horned Lark, giving utterance to song or alarm, and the Horned Lark, with its gregarious habits, startled whistle, unsettled manner, and absence of song, easily proclaims the fact that it is still in migration, and not even thinking of nesting.

In the fall, when both species are gregarious, it is more difficult to secure records without indiscriminate shooting, and my scattered notes for this season are not sufficient to warrant conclusions.

Following is a summary of migrations for this species. Omissions of dates of departure are due, mainly to my failure in recording them:

1906—First seen, April 8. Last seen, ———.
1909—First seen, April 4. Last seen, May 2.
1910—First seen, March 28. Last seen, ———.
1911—First seen, April 16. Last seen, April 23.
1912—First seen, April 28. Last seen, ———.

1913—First seen, April 13. Last seen, May 4.
1914—First seen, April 10. Last seen, ———.

I cannot resist alluding to the several outward resemblances, in habit and appearance, between shorelarks and shorebirds (*Limicolae*). The whistled "pe-u," appearance while walking and running, and the partially ringed neck of Otocoris all recall certain shorebirds; and coupled with the habit of associating with shorebirds during migration, these resemblances are responsible for the destruction of many larks by mistaken gunners.

St. Lambert, Que.

ANNOTATED LIST OF THE WATER BIRDS, GAME BIRDS AND BIRDS OF PREY OF SAC COUNTY, IOWA.

By J. A. Spurrell.

My purpose in writing this list is to place on record personal observations, which if trusted to memory or even to note-books would be lost, and also much data gathered from the pioneers of the county, which is much more valuable than my own observations.

My personal interest in birds dates from my early childhood. When I first began to keep a record of the species identified in July, 1907, I had a local list of about fifty species. My first Reed's Bird Guides were purchased in 1906. They had been preceded by a complete file of "Birds and Nature" and were followed by many other bird books. After that my local list grew steadily until it now numbers one hundred sixty-five species. In my own identifications I have used extreme care in making records of species, excluding everything doubtful. I have used eight-power stero-binoculars the last four years. I have also identified all dead specimens found. In gathering data from the pioneers I have used extreme care to differentiate species, excluding everything doubtful.

I am indebted to the following people for records and information. Mr. C. Orville Lee of Sac City, whose parents came to Sac County in 1854, and who was born in 1860. In his youth he improved all opportunities for hunting and has always been a keen observer of things natural, being still interested in the subject. Mr. Hugh Cory of Sac City, who came to Sac County in 1854 as one of the first party of white settlers. Mr. Shelt Tiberghien of Sac City, who came to Sac County in 1856. The earliest settlers obtained most of their living from the game animals and birds and were keen observers of them. Mr. Harry Colburn of Sac City, furnished one observation, and Mr. Platt Armstrong of Lake View, who came to the county in 1878, a few. Dr. A. S. Hayden of Wall Lake, who came in 1873, and his wife, who came in 1878, also their daughter, Mrs. George May, have furnished much valuable data. My father, John Spurrell, who came to Wall Lake in 1875, contributed some data. One of my most valuable sources of data was Mr. and Mrs. H. B. Smith of Odebolt, who came to the county in 1876. They not only furnished information but had formed a collection of mounted birds which included nearly all the game birds of the region, besides many land birds. Mr. Smith is now dead, but his wife still maintains the collection, which they had started many years ago in Ohio. I visited them July 28, 1913, while Mr. Smith was living, and obtained information about all the specimens taken in Sac and adjoining counties.

While, in general, the topography of Sac County is that of a treeless prairie, except for the now numerous planted groves, there are two distinct types of land surface. The eastern half of the county is within the Wisconsin glaciation, characterized by very gentle swells, a few low knobs, a level landscape, and very poor drainage conditions. At the time of settlement all the low-lying land in this area was either pond, marsh, or slough. The roads wound around, following the ridges of the low swells. At the present time the roads follow section lines, all of the ponds and the great majority of the marshes and sloughs having been drained.

Correction pond, Lard lake, Rush lake, and many smaller ponds are now farm land. This section is drained by the Raccoon river, locally called the "Coon," and its tributaries, Cedar river and Indian creek. The drainage from Wall lake, the only one remaining, flows into Indian creek. The Raccoon river enters the county on its north line about six miles from its northeast corner, flowing in a southerly direction about eighteen miles, when it turns and flows eastward, its waters finally reaching the Mississippi. The "Coon" river has cut a broad valley about fifty feet deep. The river follows a winding course through this valley, sometimes cutting into the sides and forming steep bluffs. The bluffs and part of the bottom lands are now timbered. At the time of settlement its timber fringe was from one to four miles broad. The enlarged parts were known as Grant Grove, located where the river turns east; Cory Grove, about three miles south of Sac City; and Lee's Grove, about eight miles north of Sac City. The first settlements in the county were at Grant Grove, which became Grant City, and at Sac City, in the year 1854. Until about 1870 there were very few settlers other than along this timbered well drained strip along the "Coon" river. Having so limited a habitat the forest-loving game birds were speedily exterminated.

The western half of the county is within the Kansan glaciation and characterized by a gently rolling to roughly rolling surface, the highest hills being about sixty feet, with a mature drainage and no lakes, ponds, or marshes. This section is drained by the Boyer river and a few small creeks tributary to it, all their waters finally reaching the Missouri river. The Boyer river occupies a flood plain about a mile wide, across and down which it follows an exceedingly tortuous course. It has a local reputation of being the crookedest river there is. Its general direction is southerly until within four miles of the south line of the county, when it turns abruptly southwest.

The two glaciations are divided by the Wisconsin moraine, which is several miles broad, and partakes of the general

rolling topography. A portion of it is locally known as the "Big Ridge." For about twenty miles its eastern border is followed by Indian creek flowing south. The creek then turns and flows east into the Raccoon river, passing within one-fourth mile of Wall lake, the waters of which flow several miles to reach it. Wall lake is situated just south of the turn in Indian creek. It has an irregular outline, does not exceed ten feet in depth at the deepest part, and in general is shallow, covering an area of about nine hundred and sixty acres, or approximately two square miles. It gets its name from an irregular "wall" of glacial boulders or "niggerheads," which were piled around its shores by the ice expansion of winter and the break-up in spring. Only small portions of the "wall" remain, most of it having been long since hauled away for barn foundations.

Wall lake and the Boyer river are connected by a depression which appears to be a pre-glacial channel of the Boyer river. This broad flat valley extends directly across the Wisconsin moraine. It extends southwesterly from Wall lake to the Boyer river, passing to the south of the town of Wall Lake. The two miles of this valley next to the Boyer river are lower than the banks of the Boyer and this depression is flooded by back-water from the Boyer river every spring and some years very frequently during the summer. The summer of 1915 it was full of water all summer, but in ordinary years the water runs out very slowly, leaving the "Goosepond," as it is locally known, dry during late fall and winter. In times of extreme high water, which occur every five to ten or fifteen years, the waters from the Boyer entirely flood the very low divide at the east end of the "Goosepond" and flow into Wall lake, thus mingling the waters of the Missouri and Mississippi drainage systems, sufficiently so that aquatic forms of life could pass from one to the other. An elaborate plan for draining the "Goosepond" is now being projected.

Since the "Goosepond" is nearly always flooded in the spring, it is a favorite resort of the migrating waterfowl and

shore birds, the more so since the neighboring Wall lake is usually ice bound for some time after the earliest migrants arrive.

The tales the early settlers tell of the abundance of waterfowl and prairie upland game birds seem almost incredible today. Mrs. E. B. Hayden said, "I have seen the entire east end (about one square mile) of Wall lake so thickly covered with ducks during the spring migration that the water seemed black." Dr. Hayden said, "Every pond and mud-hole was covered with broods of young ducks."

According to Mr. Lee or Mr. Smith, swans, Canada geese, sandhill cranes, prairie chickens, upland plover, and long-billed curlew nested within the county, besides the following ducks, ranked in the order of abundance as nesting species: blue-winged teal, green-winged teal, mallard, spoon-bill, pintail, wood duck, black head or scaup, and redhead. Mr. Tiberghien also reported the whooping crane as nesting.

Today, most of these do not nest in the county at all, only prairie chickens, mallards, blue-winged teal rarely nesting. Mr. Lee stated that ninety per cent of the ducks raised in Iowa today are blue-winged teal.

Mr. Smith ranked the ducks in order of abundance as mallards, pintail, and teal as being common, then wood duck, canvas-back, and hooded merganser next in order of abundance, with the old-squaw as the rarest of all. The time of which he spoke was from 1876 to about 1885.

SPECIES LISTED.

Eared Grebe (*Colymbus nigricollis californicus*). The only record is a speciemn in the Smith collection. I have seen large grebes on Wall lake, but could not certainly identify them at the time.

Pied-billed Grebe (*Podilymbus podiceps*). I have found this grebe to be tolerably common on Wall lake and the "Goosepond" during migration. My earliest migration date is April 11, 1915. There are two specimens in the Smith collection. I am not aware of its breeding.

Loon (*Gavia immer*). Mr. Lee reported that loons nested, their young being seen, on Rush and Lard lakes north of Sac City, every year until 1900. Loons were also reported by Mr. Tiberghien.

Herring Gull (*Larus argentatus*). I first identified it April 11, 1915, when I saw a single bird in winter plumage in the "Goosepond." Mrs. George May also reported three seen in the "Goosepond" April 16, 1911. There is one specimen in the Smith collection.

Franklin Gull (*Larus franklini*). Specimen in the Smith collection. This species is an abundant migrant both spring and fall. At both seasons, a flock will often follow a farmer plowing for hours at a time, usually coming in the forenoon and again in the afternoon, at times alighting on the plowing and resting for a half hour or less. They follow the plow very closely and I have seen them swoop down, capture and swallow white grubs, angleworms, and other insects. While disking fall plowed land in the spring I have seen a Franklin gull capture and swallow an adult prairie white-footed mouse, although the mouse went down with difficulty. Another farmer reported the gulls capturing an entire family of mice which were plowed out.

Occasionally in the spring I have seen huge flocks of these gulls, after much preliminary circling, alight upon a bluegrass pasture, resting there for some time, in such numbers as to make the ground appear white. In the fall the young birds, with different plumage from the adults, make up a majority of the flocks, which frequently stay in the vicinity several weeks. Sometimes all members of a flock will scatter far apart and start circling *high* in the air, until the sky is filled with their soaring and circling forms as high as the eye can distinguish them. In feeding they range over the entire country, not confining their attention to bodies of water. When feeding they usually fly in loose straggling flocks, but when migrating, in a compact flock. Mrs. George May reported them in "Goosepond" April 14, 1911.

MIGRATION DATA.

	Spring.			Fall.		
Year	First seen.	Became common.	Last seen.	First seen.	Became common.	Last seen.
1904—April	21.					
1906—May	3.					
1908—April	25.	May 2.	May 30.	Sept. 30.	Sept. 30.	Nov. 6
1909—April	22.	May 2.	May 31.	Oct. 11.	Oct. 17.	Nov. 6
1910—April	30.	April 30.	June 27.	Oct. 6.		Oct. 27
1911—April	19.	April 19.	May 11.	Sept. 28.	Sept. 28.	Oct. 30
1912—April	26.	April 26.	May 20.	Sept. 23.	Oct. 4.	Nov. 5
1913—April	22.	May 4.				
1914—April	29.	May 1.	June 6.			
1915—May	3.	May 16.				Oct. 23

Forster Tern (*Sterna forsteri*). A rare migrant. Specimen in the Smith collection. I once saw three large terns over Wall lake in the fall, which I took to be this species, but was unable to distinguish for certain between this species and the common tern before they flew.

Least Tern (*Sterna antillarum*). A rare migrant. I found one shot by hunters, on the shore of Wall lake, September 29, 1912. I saw four least terns flying over Wall lake June 19, 1916. Mrs. George May also reported it from Wall lake in the fall.

Black Tern (*Hydrochelidon nigra surinamensis*). Specimen in the Smith collection. The black tern is a common migrant both spring and fall and also a tolerably common breeder. They follow the plow for insects in the same manner that Franklin gulls do, but not as persistently. During the nesting season they do not range far from the marshes or lakes, but in the fall they range far over the surrounding country, often ranging over the hayfields to catch grasshoppers. They nest in the vicinity of Wall lake and on small marshy ponds between Lake View and Sac City. A colony of about fifty nested in the "Goosepond" the summer of 1915, judging from their remonstrance as I passed through it on the railroad track several times during July.

Quotation from Rudolph M. Anderson's "Birds of Iowa. '"Dr. J. A. Allen records, "great numbers, July 20, about Wall lake, in Sac Co. The young had already flown and were accompanying their parents." (Mem. Bost. Soc. i 1868, 502.)"' Mr. Lee also reports them as nesting.

MIGRATION DATA.

	Spring.	
Year.	First seen.	Became common.
1908—May	15.	May 27
1909—May	14.	May 14
1910—May	13.	May 19
1911—May	20.	
1912—May	12.	May 14
1913—May	11.	May 18
1914—May	10.	May 10
1915—May	9.	May 18

Double-crested Cormorant (*Phalacrocorax auritus auritus*). Reported by Mr. Smith as rare. A specimen in his collection. Reported by Mr. Lee as being called "black swan" and having the habit of staying in the middle of large lakes. He had seen none since 1894.

White Pelican (*Pelecanus erythrorhynchos*). Specimen in the

Smith collection. The pelican is a regular migrant, stopping on Wall lake to spend the night. It was common in early days, and large flocks are still seen in some years. Two pelicans, winged-tipped by hunters, were kept all summer at Lakewood resort on Wall lake about the year 1900. Mr. Lee and several others reported that seventy-five pelicans were killed by a hail storm in March or April, 1896, on a pond between Lake View and Sac City.

Merganser (*Mergus americanus*). Two specimens, a male and a female, in the Smith collection. The merganser is reported by Mr. Lee as being always rare. I identified a female on the inlet of Wall lake, May 9, 1915.

Red-breasted Merganser (*Mergus serrator*). One specimen, a female, in the Smith collection. Mrs. George May reported one seen in the "Goosepond" April 17, 1911. It must be classed as a rare migrant.

Hooded Merganser (*Lophodytes cucullatus*). A female specimen in Smith collection. It was reported rare by Mr. Smith.

Mallard (*Anas platyrhynchos*). Three specimens in the Smith collection. All the early settlers state that the mallard was a common breeder and abundant migrant. It is still one of the most common ducks, although greatly reduced in numbers, and breeds occasionally in secluded places. According to local hunters it nested in the "Goosepond" in 1915.

Black Duck (*Anas rubripes*). Mr. Lee reported killing a black duck in the spring of 1909, also that five were killed by another hunter the fall before.

Gadwall (*Chaulelasmus streperus*). Specimen in the Smith collection. Reported common by Mr. Lee. I found the remains of a gadwall, I think the remnants of a Cooper hawk's meal, April 21, 1913. I identified a male and two females on the inlet of Wall lake, April 2, 1916.

Baldpate (*Mareca americana*). Specimen in the Smith collection. Reported tolerably common by Mr. Lee. I saw about fifty on Wall lake March 15, 1914, and fifteen in the "Goosepond" April 16, 1916.

Green-winged Teal (*Nettion carolinense*). Two specimens in the Smith collection. Not as common as the blue-winged teal and migrates earlier, my first seen dates ranging from March 15 to April 4. Mr. Lee stated that the green-winged teal nested until about 1883, building their nests in the prairie grass well back from the water. He said that the nests were often exposed by prairie fires and that the females would return and try to hatch out the cooked eggs, often sitting for weeks. He stated that the blue-winged teal nested in similar locations.

Blue-winged Teal (*Querquedula discors*). Reported by all the early settlers as nesting abundantly, and as more common than the

green-winged teal. It is still the most common of nesting ducks, although in extremely small numbers as compared with early days. It nested commonly in the "Goosepond" in 1915.

Cinnamon Teal (*Querquedula cyanoptera*). I identified one among many other ducks in the "Goosepond" April 18, 1915. It was resting and preening its feathers on the top of a haystack bottom surrounded by water. I had ample opportunity to observe it through eight-power binoculars, getting all identification marks. Mrs. George May also reported it in the spring of 1911, and a local hunter in the fall of 1915, both observations in the "Goosepond." The hunter has a copy of Reed's Game Bird Guide.

Shoveller or Spoonbill (*Spatula clypeata*). Specimen in the Smith collection. In my experience this duck ranks next to the mallard in abundance. First seen dates range from April 3 to May 4. During the summer of 1915 it was numerous around the "Goosepond" and I presume nested there. Mr. Lee reports it as nesting commonly in early days.

Pintail (*Dafila acuta*). Three specimens in the Smith collection. This duck nested commonly in early days and Mr. Lee reports it as a rare breeder now. In 1908 the "Goosepond" was flooded and it remained until late in June. It is one of the earliest migrants. My first seen dates range from March 15 to April 24.

Wood Duck (*Aix sponsa*). Three specimens in the Smith collection. Very rare now. Mr. Lee reported it as next to the pintail in numbers breeding in early days and as still nesting in rare instances, nests having been reported in 1916. H. B. Hayden killed one on Wall lake in 1904.

Redhead (*Marila americana*). Specimen in the Smith collection. Reported by Mr. Smith as very common in early days, he having killed one hundred twenty-nine redheads to seven canvas-backs in the years 1876 to 1881. Mr. Lee reported it common. I saw many in the "Goosepond" April 7, 1912, and Mrs. George May reported it from the same place April 16, 1911.

Canvas-back (*Marila valisineria*). Specimen in the Smith collection. Both Mr. Lee and Mr. Smith stated that it was rare in early days. It appears to be increasing in numbers. Mrs. George May identified it in the "Goosepond" April 4, 1912. Local hunters reported it more common that year than for years. I found it common in the spring of 1915, keeping company with scaup ducks in the "Goosepond."

Greater Scaup (*Marila marila*). I presume it occurs, but I have never positively identified it and have no records.

Lesser Scaup (*Marila affinis*). Specimen in the Smith collection. Reported as breeding in early days by Mr. Lee. It is a common migrant now. My first seen dates range from March 28 to May 11. It often lingers till June.

Ring-necked Duck (*Marila collaris*). Specimen in the Smith collection. Reported common by Mr. Lee. He stated that a party of hunters at Wall lake killed one hundred twenty-five in 1904.

Buffle-head (*Charitonetta albeola*). Three specimens in the Smith collection. Reported common by Mr. Lee. I saw one in the "Goosepond" May 5, 1914.

Old-squaw Duck (*Harelda hyemalis*). One specimen, a male, in the Smith collection. Mr. Smith said that this was the only one he ever saw, and considered it very rare. No others reported it.

Ruddy Duck (*Erismatura jamaicensis*). Two specimens in the Smith collection. Mr. Lee reported it rare.

Lesser Snow Goose (*Chen hyperboreus hyperboreus*). Specimen in the Smith collection. They are rare migrants at the present day. Mr. Lee reported that snow geese were quite common in early days, he having seen acres covered with them. He stated that they never nested but stayed about a month in spring and were rare in fall. Both Mr. Smith and Mr. Lee said they were very poor eating as they never got fat. On April 3, 1914, I counted eight snow geese in a flock of blue geese, which had alighted in the cornfield back of our barn. On March 28, 1915, I saw seven snow geese in a large flock of blue geese. I called them lesser snow geese because they were approximately the same size as the blue geese.

Blue Goose (*Chen cærulescens*). Specimen in the Smith collection. Mr. Smith said that the one he had mounted was the only one he ever saw. Mr. Lee considered them rare, reporting about one hundred snow geese to one blue goose. In my experience this goose cannot be called rare at the present day. On April 2, 1914, about fifty blue geese and three snow geese alighted in a cornfield about one-half mile from our house. I took my binoculars and got close enough to see the rusty wash on their white heads and necks in addition to their blue bodies. The next day a larger flock of eight snow geese and one hundred sixty blue geese (I counted them, and they were so thick I missed a few) alighted and rested for some time on a bluegrass pasture. Later they alighted in a cornfield only about twenty rods from our barn, from which I watched them through my field glasses. On March 28, 1915, an enormous flock of blue geese came up the Boyer river valley from the southwest and after much preliminary circling they alighted in a dense mass about the center of the "Goosepond," where they remained until I left, or for over two hours. It was impossible to count them, but I estimated their number at two thousand or over. The flock contained seven snow geese. On April 2nd I again saw what I think was the same flock of blue geese, as there were seven snow geese in it. They were flying in immense circles high in the heavens, honking as they flew. Local

hunters reported the blue geese as present in the "Goosepond" in the spring of 1916. I did not see them as I was away from home, except for two brief visits.

White-fronted Goose (*Anser albifrons gambeli*). Both Mr. Lee and Mr. Smith reported this goose common in early days. Both stated that they were good eating as they got very fat. Mr. Lee stated that they were common in fall as well as in spring, coming about September 1st and staying until it froze up. They are tolerably common yet. I saw a small flock in the "Goosepond" March 28, 1915. Mrs. George May reported them in the same place April 14, 1911. Snow geese, blue geese, and white-fronted geese are all called brant by local hunters.

Canada Goose (*Branta canadensis canadensis*). Reported as common by both Mr. Smith and Mr. Lee, but not as common as its smaller subspecies. Mr. Lee said that the Canada goose was the only goose that ever nested in Sac county. He stated that in 1856 or 1857 a party of seven men captured a double wagon-box full of young Canada geese from one-half to two-thirds grown in a trip of about fifty miles, from Sac City up Cedar creek to Fonda, then west to Pond or Sunk grove, then to the Raccoon river and down it to Sac City. He also reported the last Canada goose nest at Correction pond in the year 1878, with perhaps some nesting at Rush lake in 1886 or '87. He further said that Canada geese are the least common of the three subspecies now, but that thousands of Canada geese stayed at Storm lake in Buena Vista county for a month in the spring of 1914. My father reported that Caanda geese nested in the "Goosepond" till 1878. Mrs. George May reported them in the "Goosepond" April 14, 1911, and I identified one April 18, 1913.

Hutchin's Goose (*Branta canadensis hutchinsi*). Reported by Mr. Lee as tolerably common both in early days and at the present time.

Cackling Goose (*Branta canadensis minima*). Mr. Lee reported that the cackling goose was more common than the Hutchin's in early days, and as more common than either Hutchin's or Canada at the present day.

Brant (*Branta bernicla glausogastra*). Mrs. George May reported five seen in the "Goosepond" in the spring of 1911.

Whistling Swan (*Olor columbianus*). Specimen in the Smith collection. Mr. Smith reported them as tolerably common. My father stated that Mr. Oscar Draper shot two swans, weighing respectively, twenty-three and one-half and twenty-four pounds, out of a flock of eight or ten, in the "Goosepond" in 1875. Mr. Lee reported swans flying over in 1888 and 1889. A swan was seen on Wall lake by hunters in 1904. Local hunters reported that a flock

of about fifty swans stayed about the lower end of the "Goosepond" for some time in the spring of 1915.

Trumpeter Swan (*Olor buccinator*). Mr. Smith has a fine specimen in his collection, but reported them very rare. Mr. Lee said that he saw swans swimming in Rush lake in nesting season in 1873. Mr. Shelt Tiberghien reported the last swan nesting about 1870.

Bittern (*Botaurus lentiginosus*). These birds are common in all wet marshy sloughs of any extent. They are more common in migration, but considerable numbers remain throughout the summer in all suitable localities. I have first seen migration dates of April 13, 1913; May 3, 1914, and May 9, 1915.

Least Bittern (*Ixobrychus exilis*). Specimen in the Smith collection. I have found the least bittern rare, never having seen more than two in one day, and these usually in the fall. I have observed it both on Wall lake and in the "Goosepond."

Great Blue Heron (*Ardea herodias herodias*). This huge heron is a tolerably common migrant in the fall, somewhat rarer in spring. It is a rare breeder. In the spring of 1915 I saw five in the air over the "Goosepond" at the same instant. I have also seen it along the Coon river and about Wall lake. Mr. Lee stated that it now nests along the Coon river and that it was much more common in early days. A pair nested along the Boyer river or in the lower end of the "Goosepond" during the summer of 1915, according to the report of a local farmer, who saw them all summer and saw the young from the time they were able to fly until the hunting season opened.

Green Heron (*Butorides virescens virescens*). Two specimens in the Smith collection. The green heron is common along the Coon river. I saw it in the "Goosepond" in the spring of 1915, and also during the summer of 1916. During this summer I also saw it frequently along the Boyer river near by. I think it nests at all the places previously mentioned, and possibly at Wall lake, although it is not numerous at the lake, even during migration.

Black-crowned Night Heron (*Nycticoarx nycticoarx nævius*). Specimen in the Smith collection. Mr. Lee stated that these herons were common and nested at Sac City, but in most of the county it is a rare bird. It has been shot at Wall lake and at a pond north of the lake. I have seen one along Indian creek northwest of Lake View, and two were reported by a farmer boy along the Boyer river in 1914.

Whooping Crane (*Grus americana*). According to all early settlers the whooping crane was much rarer than the sandhill crane. My father stated that he had seen from one to ten in flocks of sandhill cranes, and that he had seen as high as forty in a flock

by themselves, both in the spring and fall. Mr. Shelt Tiberghien said that whooping or white cranes nested in northern Sac county until about the year 1869, and that the whooping cranes deserted this section as a breeding ground at the time that the railroad went through Newell. Mr. Lee reported none seen since 1895. My last record is March 24, 1904. Mr. Smith stated that he once secured a specimen for mounting which a neighbor had shot, but that it was temporarily left on a work bench, with its head hanging over so that the hogs could reach it, and they considered it good eating.

Sandhill Crane (*Grus mexicana*). Specimen in the Smith collection. Mr. Smith reported them very common. My father stated that a pair were seen about the farm all summer in 1875. Mr. Lee also reports them as common and breeding, two eggs being laid, with the last nest found about the year 1875. He hatched out two eggs from this nest under a goose, but could not raise the young cranes. He stated that the sandhills nested in sloughs, building their own mound for the nest and not using muskrat houses. Mr. Shelt Tiberghien reported them nesting also, with the last nest in 1878. I have found sandhill cranes only tolerably common to rare as migrants; also more common in spring than in fall. I have eight spring migration dates in the twelve years from 1904-1915, ranging from first seen on March 8th to April 10th, with the average on April 5th. I have never seen them alight save once, which was in a large pasture, in the fall. Their trumpeting can be frequently heard on spring nights as they pass overhead, although they also migrate by day. My father said that he once saw a flock of sandhills "dancing." They flopped their wings, kicked and hopped and circled about, but did not rise from the ground during the dance. Mr. Timmerman of Wall lake stated that when a boy in Franklin county he used to trap the sandhills in steel traps set in oat, wheat, or corn fields, but unless promptly secured the cranes would twist off their toes and escape. They were considered good eating.

King Rail (*Rallus elegans*). The king rail is a common breeder, nesting wherever there are suitable marshes. It is especially common in the "Goosepond" some years. I have seen the young rails there when they were about the size of young domestic chickens a few days old, and they were dead black in color. I have also seen the species about the inlet of Wall lake.

Virginia Rail (*Rallus virginianus*). Specimen in the Smith collection. I have found the Virginia rail very rare. I saw one in the "Goosepond" May 30, 1915, and one at Wall lake August 27, 1909.

Sora Rail (*Porzana carolina*). The sora rail is common in all

suitable marshy places, at least during migrations. I have picked up several dead soras which apparently had struck telephone wires or buildings during migration.

Florida Gallinule (*Gallinula galeata*). Very rare. I saw one in the "Goosepond" May 11, 1913. My father picked up a young gallinule which was lying dead by the roadside, August 17, 1908. Apparently it had flown into a telephone wire as the skin on its crown plate was broken.

Coot or Mudhen (*Fulica americana*). Specimen in the Smith collection. Very abundant during migration, especially at Wall lake and in the "Goosepond." It nests commonly in all suitable marshy places. My first seen dates range from April 3rd to 16th.

Wilson Phalarope (*Steganopus tricolor*). Specimen in the Smith collection. A rare migrant. I first identified it on May 9, 1909, in the "Goosepond," the one seen being an adult female. On September 3, 1911, I saw a young Wilson phalarope at the inlet of Wall lake. I saw an adult female in the "Goosepond" in the spring of 1916.

Avocet (*Recurvirostra americana*). Mr. Harry Colburn of Sac City killed twenty avocets along the Cedar creek in 1894. In the fall of 1914 I saw two birds along the inlet of Wall lake which must have been avocets, but they were so wary that I could not positively identify them, although they were very large shore birds with long legs, very loud call notes and a striking black and white color pattern.

Wilson Snipe (*Gallingo delicata*). Very common in suitable marshy places during migration. My spring migration dates range from April 4th to 23rd for first seen. I flushed one from a small springy creek November 28, 1915.

Long-billed Dowitcher (*Macrorhamphus griseus scolopaceus*). Very rare migrant. I first identified it in the "Goosepond" May 9, 1909, seeing one. I also saw one August 8, 1911, rowing my boat to within ten feet of where it probed the muddy shore of the inlet of Wall lake.

Stilt Sandpiper (*Micropalama himantopus*). A rare migrant. I saw two in the "Goosepond" May 23, 1915.

Pectoral Sandpiper (*Pisobia maculata*). An abundant spring migrant, common fall migrant, frequenting low wet pastures far from any open water, in the fall. My first seen dates in spring range from April 4th to May 4th and I have seen it in the fall from August 6th to September 8th.

Baird Sandpiper (*Pisobia bairdi*). A rare migrant which I have identified only once, on August 23, 1911, at the inlet of Wall lake. I watched that one through eight-power binoculars for fifteen minutes or more, at distances as close as ten feet.

Least Sandpiper (*Pisobia minutilla*). A common migrant, especially in the fall and about the inlet of Wall lake. It is less common in the "Goosepond" and marshy places. My first seen dates in fall range from August 2nd to 24th.

Red-backed Sandpiper (*Pelidna alpina sakhalina*). A rare migrant. I saw two males and one female in the "Goosepond" May 23, 1915.

Semipalmated Sandpiper (*Ereunetes pusilla*). A common migrant during the months of May, August and the first half of September, especially about the inlet. It is usually found in the company of least sandpipers and is not quite as common as that species.

Marbeled Godwit (*Limosa fedoa*). Specimen in the Smith collection. Mr. Lee reported them as formerly common and told of finding nests and eggs. Mr. Smith reported them as rare after 1875.

Hudsonian Godwit (*Limosa hæmastica*). Specimen in the Smith collection. Mr. Smith reported them as rare.

Greater Yellow-legs (*Totanus melanoleucus*). Two specimens in the Smith collection. A rare spring and fall migrant at the present time. I saw one August 24, 1914, and one in the spring of 1916.

Lesser Yellow-legs (*Totanus flavipes*). A common migrant both spring and fall, about the inlet of Wall lake and the "Goosepond." My first seen dates in spring range from April 18th to May 12th; in the fall, August 4th is the earliest date.

Solitary Sandpiper (*Helodramas solitarius solitarius*). A tolerably common migrant both in spring and fall. It is more frequently found along the small creeks and streams, one or two individuals in a place, than about the larger marshes or the lake. My first seen dates in spring are from May 18th to 23rd. In the fall it comes early in August and remains as late as the second week in October.

Willet (*Catoptrophorus semipalmatus semipalmatus*). A very rare migrant. I identified one in the "Goosepond" May 30, 1915.

Upland Plover (*Bartramia longicuda*). Tolerably common spring and fall migrant at present. Mr. Lee reported it as formerly common and breeding, the last nest he knew of being about 1890. Mr. Smith reported it as nesting in timothy fields and so shy that it had to be hunted by driving up to it with a team. I can remember of a nest in our pasture, which must have been about 1898.

Spotted Sandpiper (*Actitis macularius*). Only tolerably common along the sandy shores of Wall lake and along the Coon river. I know it as a migrant only.

Long-billed Curlew (*Numenius americanus*). Specimen in the Smith collection. Mr. Smith said they were rare after he came in 1876. Mr. Lee reported seeing none of late years, but that formerly they were common and nested, the last nest about 1885.

Golden Plover (*Charadrius dominicus dominicus*). Mr. Smith said, "There were countless thousands of them running over the burned-over prairies in the spring of 1876." Mr. Lee reported that in early days Indian creek used to be a flightway for golden plover. He stated that during the spring migration a bushel basket-full could be shot there in an hour. He also reported seeing four golden plover in Buena Vista county in the fall of 1916. Dr. Speaker of Lake View reported one killed near Wall lake about 1910.

Killdeer (*Oxyechus vociferus*). Tolerably common as a migrant and tolerably common as a breeding species. I once found a nest in my cornfield over three-fourths of a mile from the nearest water. It is one of the earliest migrants, my first seen dates ranging from March 11th in 1908 and 1911 to April 3rd in 1915.

Semipalmated Plover (*Ægialitis semipalmata*). A common fall migrant, especially at the inlet of Wall lake, but rare as a spring migrant in my experience. I have seen it only once in spring, June 9, 1916, along Boyer river west of the "Goosepond."

Bob-white or Quail (*Colinus virginianus virginianus*). Two specimens in the Smith collection. The bob-white is very rare in all the prairie portions of the county at he present time. The few that are found live mostly along the edges of the timber along the Coon river. Mr. Lee reported bob-whites very scarce in 1854. Mr. Tiberghien reported that bob-whites were most numerous in 1866. Mr. Platt Armstrong of Lake View reported a few bob-whites in a patch of brush on Indian creek in 1878. The bob-whites do not thrive in the prairie portions of the county because, even if the hunters spare them, every four or five years there comes a sleet storm in winter which reduces them to the verge of extinction.

Ruffed Grouse (*Bonasa umbellus umbellus*). Extinct in the county at the present day. Mr. Lee said he saw the last one in 1886, and had seen a few others before that. Mr. Hugh Cory reported ruffed grouse rare, the last he saw being in the 1860's.

Prairie Chicken (*Tympanuchus americanus americanus*). Three specimens in the Smith collection. The status of the prairie chicken has been changed several times in Sac county. Mr. Tiberghien reported that the prairies chickens were common at the time of the earliest settlements, but that they migrated south in winter. He said that in the winter of 1855-56 fifteen chickens tried to remain and only seven of them survived. All the other chickens had migrated south, and returning the next spring were very abundant the succeeding summer and fall, nesting in great numbers on the prairie. These migrations giving *absence* in winter continued until about 1875 to 1880, when corn became a common crop. The prairie chickens then both nested and wintered abundantly. Many farmers trapped them in coop traps during the winter, some of

them drying the meat of the breasts for summer use. One albino prairie chicken attained quite a local reputation in the southern half of the county because it could never be trapped, and all the hunters made it a point to spare the "White Chicken." This period continued until about 1895, by which time the county became so thickly settled that only a few prairie chickens could find places to nest. From this time on they have been common in winter, coming in from the Dakotas or Minnesota, wintering in the stalk fields or about the fields of shocked fodder, and in the spring returning whence they came to nest. This condition continues at present, with the exception of a few remaining to breed. From 1900 to 1913 I have no knowledge, nor can I find any record of a prairie chicken nesting in Sac county. Mr. Lee reported one pair nesting in the northern part of the county in 1913 and several pairs in 1914. In 1915 one pair nested a few miles from Wall lake. I saw the brood in July when the young were about the size of bob-whites.

Prairie Sharp-tailed Grouse (*Pediœcetes phasianellus campestris*). Mr. Hugh Cory said that he trapped about one hundred of these birds in the winter of 1855-56. He stated that he saw them last in the 1850's, and that they were much rarer than prairie chickens. Mr. Tiberghien also reported them rare, with the last seen in 1858.

Wild Turkey (*Meleagris gallopavo silvestris*). Both Mr. Cory and Mr. Tiberghien reported three killed at Grant City in 1854. This is the only record for the county.

Passenger pigeon (*Ectopistes migratorius*). Mr. Tiberghien said that he had seen flocks of five hundred in buckwheat fields in the fall. The last one he shot was in September, 1879. My father saw one near the "Goosepond" in the summer of 1875, and a flock of about twenty nested in the young grove about the home place one mile north of Wall lake one spring between 1880 and 1885.

Mourning Dove (*Zenaidura macroura carolinensis*). Common to abundant at times. The early settlers reported it as present at first settlement, but as much rarer than now. Since doves are very wisely protected at all times by state law they also are increasing in numbers. An occasional one spends the winter here. In the winter of 1907-08 a flock which numbered twenty on December 22nd were tempted to winter by an abundant supply of shelled popcorn, which was scattered on the ground in a thirty-acre field which had been husked with a corn picking machine. About the middle of January snow covered up most of the food supply and on February 4th only three doves were left. I saw one of these start south one evening about sunset. Zero temperatures succeeded, yet in spite of the cold one dove remained about the farm

buildings on February 29th. As migrants arrived on March 10th I think it survived. My first seen dates range from the date given to April 11th. The dove usually nests in groves about farm houses, but I once found a nest on the ground in a clover field. From the latter part of July until the doves depart on their fall migration in late October they select common roosting places, one of which happens to be our orchard. Toward sunset the doves visit some place to drink and then fly to the roosting place from all directions until between five and six hundred are roosting there. They depart again just as it becomes light in the morning, spending the day far away in pastures and grain fields. During the month of August they may be commonly found about salt troughs for cattle, seeming to eat the salt. In late October the numbers coming to the roost gradually become fewer, until none come in on whistling wings at sunset.

Turkey Vulture (*Cathartes aura septentrionalis*). Mr. Lee reported that vultures used to be very common. The last nest he saw was in 1875, and the last bird about 1910. Mrs. E. B. Hayden said that vultures or buzzards were common along the Coon river. Mr. Joe Abernathy reported two seen near Sac City in the spring of 1915.

Swallow-tailed Kite (*Elanoides forficatus*). A specimen taken in Ida county, which adjoins Sac on the west, is in the Smith collection. Mr. Lee reported the swallow-tail kite as rare, with the last one seen in 1908. Mr. Tiberghien also reported it as rare.

Marsh Hawk (*Circus hudsonius*). Specimen in the Smith collection. This species is a tolerably common breeder in suitable sloughs. I know of three sloughs within a few miles of Wall lake, where it breeds regularly. It does not nest in the "Goosepond," probably owing to the fluctuating water level. I think it occasionally winters, as I have seen it on Christmas day and early in February. First dates of arrival, other than February, are from March 29th to April 20th.

Sharp-shinned Hawk (*Accipiter velox*). Specimen in the Smith collection. A rare spring and fall migrant, with more observed in the spring than in the fall. I know of no breeding records, although they may nest in the timber along the Coon river.

Cooper Hawk (*Accipiter cooperi*). A rare spring and fall migrant. I have seen about five individuals all told. It may nest in the timber along the Coon river.

Red-tailed Hawk (*Buteo borealis borealis*). A rare spring migrant in the vicinity of Wall lake, but some years a common fall migrant in the month of October. My first seen dates in spring are March 3rd and 6th. I have no record of its nesting.

Western Red-tailed Hawk (*Buteo borealis calurus*). A rare fall

and winter visitant. One stayed nearly all winter several years ago.

Krider Hawk (*Buteo borealis krideri*). On March 25, 1914, I identified this subspecies. Its tail had the lighter colored portions almost white.

Rough-legged Hawk (*Archibuteo lagopus sancti-johannis*). Specimen in the Smith collection.

Golden Eagle (*Aquila chrysaetos*). Specimen in the Smith collection, but which was taken in Ida county.

Bald Eagle (*Haliæetus leucocephalus leucocephalus*). A specimen in the Smith collection which was taken in Crawford county. Mr. Lee said, "Bald eagles used to nest, the last nest being in 1871, at Brown's grove, near the north line of the county in Delaware township. They were always rare, six in one day being the highest usual record, but forty-two were seen in one tree about 1868."

Duck Hawk (*Falco peregrinus anatum*). I saw one of these hawks in the "Goosepond" April 16, 1916, obtaining a good look at it.

Pigeon Hawk (*Falco columbarius columbarius*). Mrs. George May reported seeing two, which she had under close observation for some time, near Herring, in the spring of 1911.

Sparrow Hawk (*Falco sparverius sparverius*). Specimen in the Smith collection. A rare migrant and still rarer as a nesting species. Dates of first arrival are from March 24th to April 23rd. A few miles south of Odebolt I saw four young only recently from the nest and attended by the parents, July 28, 1913. On June 6, 1916, I found a pair nesting in the south Chicago & Northwestern railroad bridge over the Boyer river. The nest was placed back in the top of the high wooden structure, so I could not see the young, but I could hear them calling, while the old bird swooped about my head crying, "killy," "killy."

Osprey (*Pandion haliætus carolinensis*). Mr. Lee said that the osprey was only tolerably common, but that they were seen every spring. I saw two at Wall lake May 14, 1916.

Barn Owl (*Aluco pratincola*). Specimen in the Smith collection. Mr. Smith stated that this was the only one he ever saw.

Long-eared Owl (*Asio wilsonianus*). Specimen in the Smith collection. It is of rare occurrence. I identified one October 20, 1908, and have seen only two since. It is probably more common in the timber along the Coon river.

Short-eared Owl (*Asio flammeus*). Specimen in the Smith collection. This species is a rare breeder and at times an abundant winter resident. One February afternoon I counted seventeen flying about over the snow-covered earth, searching for meadow mice. A pair usually nest in every fair sized patch of slough grass. I saw a pair in the "Goosepond" several evenings in the summer

of 1916. I have examined numerous pellets thrown up by this species and have almost always found from one to three meadow mouse skulls in each pellet.

Barred Owl (*Strix varia varia*). Mr. Lee said that barred owls were always rare and that they are still found occasionally.

Screech Owl (*Otus asio asio*). The screech owl is a common resident the year round. Nearly every farmer's grove has its pair of screech owls, and the towns are also well supplied, as anyone who knows their call can readily testify. At my home farm a pair have nested in an artificial house, with an entrance three inches in diameter, and with ground cork in the bottom, for several years. The female has become so accustomed to people that at the time the young leave the nest she is very bold. One evening when I was picking cherries she swooped down from behind and struck me on the head. In rare instances I have heard them "screech" in broad daylight. They are proficient catchers of English sparrows and mice. In the bitter cold winter of 1914-15 a screech owl injured one eye so that it could not see from it. I found it in the barn hay loft and also a partly eaten pigeon, which was frozen, and which I removed. The next day the owl was still there, also there was another partly eaten frozen pigeon. The owl died that night and there were no more dead pigeons.

Great Horned Owl (*Bubo virginianus virginianus*). Mr. Lee stated that the great horned owls were common in the early days, but are rare now.

Snowy Owl (*Nyctea nyctea*). Three specimens in the Smith collection. In occasional very severe winters the snowy owl comes as far south as Sac county, but it is always rare. I have never seen one alive.

Burrowing Owl (*Speotyto cunicularia hypogæa*). Mr. Lee reported burrowing owls as common and nesting. I have found them only tolerably common. My first identification was September 16, 1907, on our home farm. I have found them breeding in the following localities: About four miles north of Lake View, two miles south of Wall lake, and five miles southwest of Wall lake on the hills bordering the Boyer river flood plain. Mrs. George May also reported these owls from this locality April 15, 1911. In the summer of 1916 I saw two broods of four owlets each, sitting at the mouths of their burrows in the evening, a few days before they started to fly. At this stage the adults are very angry should a person or dog appear near the burrow, and swoop toward the intruder, snapping their bills and uttering loud cries. The pellets at the mouth of the burrow seemed to consist chiefly of beetle wings from various species, with the fur and skull of an occasional mouse.

GENERAL NOTES

NOTES FROM LAKE COUNTY.

Piping Plover Breeding.—My first spring record for this species was made on May 25 of this year, and my previous fall records having been mighty few, I was well pleased when visiting the place again on the 27th and 30th to find two birds about, and wondered if they would possibly stay and breed. Then I made the mistake of forgetting all about them until Mr. E. W. Hadeler informed me on July 5th that he had seen a Piping Plover that day on the beach. I lost no time in visiting the place the next day and found a pair of the birds, whose actions clearly indicated either eggs or young. A few minutes' search and I was lucky enough to find a downy young just old enough to run about. When first discovered it was squatted on the sand, with head flat down, and I rubbed the little crown with my finger without getting even a quiver out of him. The female meanwhile was doing the wounded bird stunt to perfection. Not wishing to cause too much disturbance I soon left, and as soon as I started off the little fellow ran for shelter. A few days later Mr. H. visited the place again, seeing three young in all, now able to run about swiftly.

Savanna Sparrow Breeding.—While hunting a swampy meadow on July 8, trying to outwit a pair of Bartram Sandpipers that apparently had a nest there, I flushed a Sparrow from under my feet, and upon looking into the nest beneath a buttercup was struck with the heavy and unusual coloration of the three eggs it contained. They were so different from all the Song and Vesper Sparrow eggs I have seen that I thought it worth while to identify the bird. I followed her about the field a while, and in doing so, flushed another bird from her nest which also contained three eggs. Before I left I obtained excellent views of both birds and heard a male sing his wheezy song several times. The day was cloudy and the grass wet, and both birds flushed almost from under my feet and lit but a short distance away. I visited the nests again the next day and found one of the males singing from a nearby fence-post, but he flew far on too close an approach. The song reminded me of a Grasshopper Sparrow trying to sing a Song Sparrow song. The females acted different in leaving the nest this time. Though I approached as before they sneaked off mouse-like for some little distance, then flew far in their characteristic swift flight. Both nests were in a low part of the meadow beneath buttercups, their rims flush with the ground. This is my first knowledge of the Savanna Sparrow otherwise than that of a spring and fall migrant.

Purple Finch as a Summer Resident.—During the latter part of

June and up until the present time (July 11) I have had a singing male under observation, but have not been able to locate any nest as yet. He is in full adult plumage.

RUSTY BLACK-BIRD.—The unusually cold wet spring that kept the Warblers here into June and gave me late May records for such birds as Kinglets, Brown Creeper and Junco also was the probable cause of a May 25th record for a singing male Rusty Blackbird weeks after they had apparently all moved on. An unusual alarm note aroused my curiosity, and I looked around to see the Rusty, who finally came flying towards me to alight near by in a willow and sing his "gor-whillier" notes several times as though they also were needed to satisfy me. The bird was not wounded in any manner that I could see.

RECORD FOR STILT SANDPIPER.—Visiting a flood pond along the beach on July 29, 1917, I found its shores to contain some fifty odd shore birds of various species, among which was one that immediately drew my attention by its peculiar actions. Before I could get a good view, however, the whole bunch flushed, the smaller Sandpipers going in one direction and the Killdeer and the unnamed one in another. An hour later I again found the Killdeer and this bird at the head of the pond and had ample opportunity to observe it and identify my first Stilt Sandpiper. It may be worthy of note that it staid with the Killdeer, while all the others kept in a separate flock which contained twenty-two Sanderling, several Spotted Sandpiper, three Semipalmated Sandpiper and two Semipalmated Plover. The peculiar actions mentioned were its manner of feeding. While all the rest were standing or moving leisurely about the muddy edges of the pond, the Stilt kept running rapidly about in most erratic circles and twistings and capturing just as they left the ground the insects that he flushed; each capture being attended by a dip of the body and a sinuous scoop of the neck, which made the whole performance very striking. And every few moments he would suddenly stop dead still and stretch up his neck to the limit to see if all was well. This action made the bird appear a very long-necked Sandpiper rather than a very long-legged one. I do not mean to say, however, that this is the usual manner of feeding with the Stilt Sandpiper, but it answered the purpose in this instance and was kept up all the time the bird was under observation. Probably an immature bird, as the legs were yellow, the underparts very light, and the tail white in flight. The slenderness of the rather long bill made a noticeable field mark.

RECORD FOR WESTERN WILLET.—Visiting the same pond on August 12 I found it occupied by several Killdeer, one Least Sandpiper, two Lesser Yellow-legs, one Black-bellied Plover and a big stranger;

while just over a sand ridge, on the beach, were Spotted Sandpipers, Sanderling, Semipalmated Plover, and a Turnstone. The big fellow was easily identified a little later as a Western Willet and proved the least timid of the lot, remaining after all the rest had flown, and running about in the shallow water. This was seemingly done to startle his food into action so as to effect its capture. Several large pollywogs, which he had drawn into shallow water, were not taken, however, but seemed greatly to arouse his curiosity. The bird had to be purposely flushed in order to see the attractive wing pattern, but he returned immediately, and I flushed him suddenly again to hear his call, and succeeded. Later in the day I found him unconsciously hunting the beach within a few hundred feet of a large gathering of bathers.

E. A. DOOLITTLE.

Painesville, Ohio.

SUMMER RECORDS FOR 1917.

In northwestern Iowa weather conditions throughout April and May were exceedingly unfavorable for seeing migrating bird. Similar conditions in 1915 were followed by like results, making the records for these months the poorest in a dozen years. In both years the birds were halted somewhere south of my station, and when their journey was resumed most of them hurried northward without stopping.

After a spring lacking in usual interests there has followed a summer in which the birds have been more plentiful than any year since 1910. This statement is based upon records of the species seen daily in my own dooryard and its immediate neighborhood, where forty-two species are known to have nested within recent years. Some of these, such as the Sora, Western Meadowlark, Grasshopper Sparrow and Chickadee are infrequent breeding birds, the Cliff Swallow and Purple Martin are summer residents of the past, the Blue Jay has become scarce, and of late the Sparrow Hawk and Screech Owl are discouraged in every possible way from nesting.

For June and July, and for August to date (which is the 25th), the daily average of species seen has been twenty-three, the highest number for any day being thirty-two, and the lowest thirteen. The total number of species seen in these months on our place and its near neighborhood is sixty, which is exactly two-thirds of the number seen here this year. All but three of the breeding species have been present, and in addition there have been twenty-one visiting species. In size the variation has been great, ranging from that of the Ruby-throated Hummingbird to that of the immature

Bald Eagle. This Eagle caller, when departing, was chased by a Marsh Hawk, and the immense spread of its wings could thus be compared with that of the Hawk. Their proportional sizes were to each other about as those of Crow to Kingbird, and their behavior was decidedly similar.

Seeing and hearing daily within hailing distance of ones doorstep an average of twenty-three species of birds is a privilege not to be despised, neither are the thrills that come when rare visitors appear quite unexpectedly: to step outside to find a non-reporting Chipping Sparrow and see a Great Blue Heron flying overhead, or to go a little farther in search of a Short-billed Marsh Wren and find instead a Bald Eagle gives zest to the roll calling. But the best part is to see the recruited numbers of some species that have been sadly missed of late. This is especially true of the Bobolink, that joyous rollicking songster which had almost disappeared from fields and orchards for a few years. The Dickcissel, entirely wanting last year, has been present in moderate numbers, and the Grasshopper Sparrow, always scarce, has been with us again. The Mourning Dove seems to be prospering as never before. Perhaps prosperity has made it more generous in revealing its nest secrets, at all events some unsuspected features have been displayed. The seventh nest of this species that has been found on our place in 1917 is now in progress. The Maryland Yellowthroat apparently was driven away by House Wrens, whose numbers have increased unduly. When such an increase happened among the Flickers a few years ago some very curious things took place by which further increase was checked and the species has now been reduced to normal numbers. It will be a matter of interest to note, if anything of like nature occurs among the Wrens, though it seems extremely unlikely.

Species whose summer residence with us is short are staying in more than usual numbers; since they came late in the spring it is possible they do not intend to cut short their northern sojourn. No Warblers from the north have been seen, though it is now time for first arrivals.

ALTHEA R. SHERMAN.

National, Iowa.

WEIGHT OF AN EAGLE'S BRAIN.

Recently Mr. Wirt W. Hallam, Secretary of the Chicago Vigilance Association, desired to secure information showing the relative brain capacity of a domestic fowl and of an eagle. Inquiry of various ornithologists failed to bring him the information, and he was compelled to secure the data himself. He secured a male

Golden Eagle through a taxidermist in Chicago, and made similar measurements upon it and a Plymouth Rock hen.

The facts obtained are as follows::

Eagle.	*Chicken.*
10 pounds—Weight of entire bird	7½ pounds
7 ft. 1 in.—Extent, tip to tip of wings	28 inches
39 inches—Length of each wing	12 inches
16 inches—Width of each wing	8 inches
36 inches—Length of entire bird	24 inches
185 grains—Weight of brain	55 grains

PRAIRIE HORNED LARKS FROZEN IN ICE.

In February, 1914, near Westfield, Iowa, I found seven Prairie Horned Larks frozen in the ice in the ruts of a country road. The ice was thin and easily broken, and as the birds were still alive they were quickly released and allowed to fly away, apparently not seriously injured. Most of the birds were held by both feet, but one or two were fastened by only one foot. Feathers could also be seen frozen in the ice. These feathers may have been whipped out in the efforts of the birds to escape, or some may have been frozen in at the same time the feet were frozen in.

We cannot be altogether certain how the birds came to be thus imprisoned in this peculiar manner. But it seems to me most likely that the birds found the deep ruts a good shelter and roosted there through the night. It is not easy to believe, however, that they would deliberately stand in water, and we may have to suppose that some thawing occurred during the forepart of the night, and that the temperature later fell to the freezing point.

CLAUDIUS PIKE.

SOME NOTES FROM ST. MARKS, FLORIDA.

Petrochelidon lunifrons lunifrons—Cliff Swallow. May 10, 1917, five flew over the river, feeding for some minutes. This is the only spring record I find.

Porzana carolina—Sora. May 8, 1917, four were seen feeding on an open marsh. All showed the bright yellow coloring to bill, indicative of approaching breeding season. May 14, 1916, a single bird was seen. These dates seem late, but I have no idea they remained here for nesting.

Haliæetus l. leucocephalus—Bald Eagle. December 11, 1916, a single egg, that proved incubation almost finished, was taken from a nest. This egg was probably deposited about November 20.

Compephilus principalis—Ivory-billed Woodpecker. I recently saw a female of this rare bird in the flesh that had been taken

down the coast—not in this county, however. A male was seen in the same locality in early May, 1917.

JOHN WILLIAMS.

ANOTHER NEW BIRD FOR OHIO.

Buckeye Lake, Licking County, has furnished Ohio with several rare records of birds. Mr. Edward S. Thomas, of Columbus, found two Surf Scoters (*Oidemia perspicilla*) there in company with scaup ducks, on April 28, 1917. It has been supposed that this scoter would be found on Lake Erie at some time, but this interior artificial body of water seems to have furnished a greater attraction.

L. J.

A SEASON OF ABUNDANCE OF BIRDS IN CENTRAL OHIO.

Mrs. R. O. Ryder, Columbus, in reporting the work of the bird students of that city, states that rarely if ever has there been such an abundant visitation of the migrating birds as during the spring migration period of 1917, especially during late April and May. Among the many species of Warblers, the Kirtland's was seen on May 21, 22, and 23. It permitted an inspection at close range. Other usually rare warblers were Prairie, Sycamore, and Connecticut, several individuals of each. Other rare birds recorded in some numbers were Yellow-bellied Flycatcher, Philadelphia Vireo, Orange-crowned Warbler, Lincoln and Bachman's Sparrows. The record of 200 species seen up to the first of June, for that inland region, is proof that there must have been a halt of many species during the severe weather, which cheated the northern counties of their usual quota of migrating species of warblers and sparrows.

L. J.

PUBLICATIONS REVIEWED

The Winter Bird Life of Minnesota. By Thomas S. Roberts. Published as Occasional Paper: No. 1, of the Zoölogical Division of the Geological and Natural History Survey of Minnesota. February, 1916. With a full page colored plate of the male and female Evening Grosbeak. Published also, without the colored plate, in "Fins, Feathers and Fur," for December, 1915.

We have here a very complete list of the birds which have been authentically recorded as winter birds within the State. The list includes eighty-five species and five subspecies, and they are listed in four groups, as follows:

Permanent residents, 32 species, 3 subspecies.

Winter visitants, 16 species, 1 subspecies.

"Half hardy," 10 species, 1 subspecies.

Accidental, 27 species.

Forty-one are marked as common in the vicinity of St. Paul and Minneapolis. Copious annotations accompany each species referring to their differential characters, status, etc. Notwithstanding the long list, it seems to have been very conservatively compiled; and in all unusual records data as to time and place are offered—in most cases the observer is also named. This list will be of considerable value to students in the adjacent states as well.

T. C. STEPHENS.

GIVE IT A FAIR TRIAL

Four Months Trial Subscription for only 25c

The Guide to Nature

Subscription $1.00 a year, Single copy 10c

EDWARD F. BIGELOW, Managing Editor

The Agassiz Association

Arcadia: South Beach, Conn.

E. T. HADOVEC & COMPANY

POWERS BUILDING, CHICAGO

We have designed a beautiful little piece of inexpensive jewelry, consisting of an

Emblem for Members of the Wilson Club

This little Wilson's Warbler can be mounted on a stick-pin, bar-pin, fob, lapel button, or hat-pin. These may be had of the designer or Business Manager, Wilson Bulletin. We specialize in the manufacture of class pins, medals, class rings and fraternity pins.

E. T. HADOVEC & COMPANY

CONTENTS

A Day with the Birds of a Hoosier Swamp
By Barton Warren Evermann 169-174

Keeping Field Records . . . By A. F. Gainer 175-177

The Saving of a Pond, and the Resulting Bird List
By Howard C. Brown 177-182

Winter Birds About Washington, D. C.
By W. L. McAtee, E. A. Preble, and Alexander Wetmore 183-187

Another Unusual Laying of the Flicker
By B. R. Bales, M.D. 188-191

General Notes 192-194
Bert Heald Bailey 195-197
The Annual Meeting 198
Index 199-208

THE WILSON BULLETIN

published quarterly, March, June, September, December, as the organ of the Wilson Ornithological Club and the Nebraska Ornithologists Union, is edited by Dr. Lynds Jones.

Terms:—$1.00 a year, including postage, strictly in advance. Single numbers 30 cents. Free to all members not in arrears for dues.

The Office of Publication is No. 48 South Main St., Oberlin, Ohio. Subscriptions may be addressed to Geo. L. Fordyce, Youngstown, Ohio, Business Manager, or to Frank M. Phelps, 212 East 4th St., Elyria, Ohio, Treasurer.

All articles and communications intended for publication and all books and publications for notice, should be sent to Dr. Lynds Jones, Spear Laboratory, Oberlin, Ohio, in time to reach Oberlin at least four weeks before the date of the number for which they are intended.

The Officers of the Wilson Ornithological Club for the year 1917 are:
President—Rev. W. F. Henninger, New Bremen, Ohio.
Vice-President—George L. Fordyce, Youngstown, Ohio.
Secretary—Gerard Alan Abbott, Grosse Pointe Shores, Mich.
Treasurer—Frank M. Phelps, 212 East 4th St., Elyria, Ohio.
Business Manager—George L. Fordyce, Youngstown, Ohio.
Editor Wilson Bulletin—Lynds Jones, Spear Laboratory, Oberlin, Ohio.

Entered as Second Class Matter, July 13, 1916, at the Postoffice at Oberlin, Ohio, under the Act of March 3, 1879.